A
NEW DICTIONARY
OF
NATURAL HISTORY;
OR,
COMPLEAT UNIVERSAL DISPLAY
OF
ANIMATED NATURE.

WITH
ACCURATE REPRESENTATIONS
OF THE
MOST CURIOUS AND BEAUTIFUL ANIMALS,
ELEGANTLY COLOURED.

By WILLIAM FREDERIC MARTYN, Esq.

IN TWO VOLUMES.

VOLUME THE FIRST.

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P R E F A C E.

IT is the peculiar glory of the present age, that Science has not only flourished, but been pursued to her last retreat. The most unpropitious climes have been explored; and neither the polar frosts, nor the tropic suns, have been able to impede the daring spirit of discovery. New countries, replete with objects before unknown, have been added to the terraqueous globe; and, as these researches have been systematically pursued by men eminent in every branch of literature, the Astronomer, the Geographer, and the Naturalist, have augmented the bounds of their respective sciences.

THE infinite variety of the productions of Nature thus presented to our view, must alone excite astonishment; but when we consider the art, mechanism, and even the beautiful irregularity, perceptible in all her operations, we are overwhelmed with admiration! In vain do we endeavour to reduce the various objects to systematical order; the idea may please, but it is only an agreeable illusion: new discoveries occasion new difficulties in our progress; and the most aspiring mind must at last acquiesce in acknowledging, that the CREATING ENERGY, who spoke all things into life, has endued his innumerable hosts of creatures with powers adapted to their respective destinations—relative, yet dissimilar; harmonious, yet contradictory to each other.

IN attempting to methodize, and reduce to classes, creatures opposite in their propensities, dispositions, and conformations, though accidentally corresponding in some particular instances, the lights presented to the eyes of man serve only to bewilder and confound him. The analogy between some creatures is evident, and the genus distinct: this encourages him to proceed in the investigation of his favourite hypothesis; an insuperable chasm interrupts his progress, and wild conjecture usurps the place of rational demonstration.

INDEED, the ineffectual attempts of the profoundest scholars, and the most indefatigable enquirers, might have convinced succeeding Naturalists, that their abilities were not to be proved on the scale of systematic arrangement, but rested rather on the accuracy of their descriptions, and the extent of their observations.

EVEN the intelligent and the penetrating Linnæus, to whom the world is under the highest obligations, and whose memory will ever be revered while taste and science remain, found it impossible to obviate all the difficulties of

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a generic arrangement in the different branches of Zoology: every new edition of his invaluable labours varied the preceding plan; and his last, the most unexceptionable of all, left the Lord of the Creation classed with Apes, Monkies, Maucaucos, and Bats!

THE sublime disorder of Nature herself, too prolific to enumerate or arrange her productions; and the essential variations between the most celebrated Naturalists, who confound while they attempt to explain; first suggested the idea of offering Zoology to the world in a method hitherto unattempted.

WITH this view, the different tribes of beings which people the earth, the air, and the water, are not only industriously collected, and faithfully described; but their œconomy, habits, and qualities, with every other matter relative to the science, are minutely explained in alphabetical order.

BUT though, in the present work, we have emancipated ourselves from system, we scruple not to retain as much method as perspicuity may require, where a genus is compleat, and the species bearing the same name vary by local rather than by natural causes.

IN the prosecution of this arduous plan, every assistance has been called in which could be derived from the most accurate observers of Nature, both ancient and modern; from authentic Voyagers and Travellers; and from the Philosophical Transactions of our own, and the Memoirs of Foreign Countries.

THE beautiful Delineations from Nature with which the work is at once elucidated and adorned, are all drawn and coloured from actual specimens, by Naturalists of acknowledged reputation, who have visited the Cabinets of the Virtuosi in every part of Europe, and occasionally published their researches; with the invaluable addition of a vast variety of curious Animals, which the indefatigable industry, the consummate skill, and the munificent expence, of Sir ASHTON LEVER, in the establishment of his noble Museum, have enabled us to lay before the public for the first time, from Original Drawings by the most ingenious Artists.

Preliminary Essay on Generation.

IT seems requisite that zoologists should consider animals in their nascent state, before they survey them in their maturity; that they should trace them from the more early periods of their existence; and give a general view of those diversities in their generation which distinguish one class from another, before they exhibit them as possessing the most perfect faculties their respective natures will permit, or performing those functions for which Providence seems to have peculiarly adapted them. In this essay, therefore, we shall keep this object and this duty solely in view; and, with a philosophic apathy, describe circumstances and scenes which the nature of our undertaking requires at our hands, and which the sensual alone can pervert to indecency.

With that humility of mind which the reflection is calculated to inspire, we must confess, that a time has been, when the proudest and noblest animal has participated in the same imbecility with the meanest reptile; and, while yet a candidate for existence, was equally helpless and contemptible. In their incipient state, all are upon an equality; the insect and the most acute philosopher being equally insensible, clogged with gross matter, and unconscious of existence. Where then are we to commence our history of those beings which make such a distinguished figure in the creation? Or, where lie those peculiar characters in the parts that conspire to form an animated nature, that mark one animal as destined to grovel in the dust, and another to glitter on the throne?

The philosophers of every age have attempted the solution of this question, which has ever been a subject of curiosity: they have, indeed, formed many rational suppositions, and made considerable advances; but still certainty is wanting to confirm their hypotheses, and the enquiry remains unsolved with physical precision. In tracing Nature to her most hidden recesses, she becomes too minute or obscure for our inspection; so that we find it impossible to mark her first differences, to discover the point where animal life begins, or the cause that conduces to set it in motion. We know little farther, than that the greatest number of animals require the concurrence of a male and female to re-produce their kind; and that these distinctly and invariably are found to beget creatures of their own species. But curiosity has been actively, though unsuccessfully, employed in trying to discover the immediate result of this union; how far each sex contributes to the beflowing animal life; and whether we are most indebted for the privilege of our existence to the exertions of the male or the female.

Hippocrates was of opinion, that fecundity proceeded from a commixture of the feminal liquor of both sexes, each of which equally contributed to the formation of the incipient animal. Aristotle, on the other hand, would have the feminal liquor in the male alone to contribute to this purpose; while the province assigned to the female by this naturalist was to supply the proper nourishment for it's support.

Such were the opinions of these fathers of philosophy; and these continued as the sacred and inviolate belief of naturalists and schoolmen for a number of succeeding ages.

At length, Stena and Harvey, taking anatomy for their guide, whereas the world had before proceeded on speculation, afforded mankind a nearer view of nature just advancing into animation. These observed, in all such animals as produced their young alive, two glandular bodies, near the womb, resembling that ovary, or cluster of small eggs, which is found in fowls; and from the analogy betwixt both, they gave these also the appellation of ovaria. As these resembled eggs, by no unnatural conclusion, they imagined them destined for the same offices; and, therefore, they were induced to think that all animals, of what kind soever, were produced from eggs.

At first, however, there was some opposition made to this system; for, as these ovaria were separate from the womb, it was objected, that they could not, in any evident respect, be conducive in replenishing that organ, with which they had no visible communication. But, on more minute inspection, Tralopius, the celebrated anatomist, perceived two tubular vessels depending from the womb, which, like the horns of a snail, possessed an inherent power of erecting themselves, of embracing the ovaria, and of receiving the eggs, in order to be fecundated by the feminal fluid.

This discovery seemed, for a long time, to fix the opinions of philosophers, and to terminate conjecture. The doctrine of Hippocrates was re-established, and the principal business of generation was ascribed to the female.

This remained likewise as an established opinion for some time; but Lewenhoeck, once more, shook the whole system, and produced a new schism among the admirers of abstruse speculation. On examining the feminal liquor of a vast number of male animals with microscopes, by which his sight was assisted far better than that of any of his predecessors had been, he perceived therein an infinite variety of little living creatures, like tadpoles, very brisk, and floating in the fluid, with a seeming voluntary motion. Each of these, therefore, was considered as the rudiments of an animal, similar to that from which it was produced; and this only required a reception from the female, together with proper nourishment, to compleat it's growth.

The business of generation was now given back to the female a second time, by many; while others suspended their assent, and chose rather to confess ignorance than embrace delusive appearances.

In this manner has the dispute continued for several ages; some accidental discovery serving, at intervals, to renew the debate, and revive curiosity. It was a subject where speculation could find much room to display itself; and M. de Buffon, who was fond of hypotheses, could not overlook such an opportunity of giving scope to his propensity. Accordingly, this most elegant and most pleasing of all naturalists discovered, by the assistance of the microscope, that not only the feminal liquor of males, but also of females, abounded with these little living animals; and that they appeared equally brisk in either fluid. These he takes not to be real animals, but organic particles, which, being simple, cannot be said to be organized themselves, but to go to the composition of all organized bodies whatever: in the same manner as a tooth in the wheel of a watch, cannot be denominated either the wheel or the watch, and yet contributes to the sum and perfection of the machine.

According to this naturalist, these organical particles are diffused through all nature; and are found not only in the feminal liquor of animals, but in most other fluids in the parts of vegetables, and all parts of animated nature. As they happen, therefore, to be differently applied, they serve to constitute a part of the animal or the vegetable, whose growth they help to encrease, while the superfluity is thrown off in the feminal liquor of both sexes, for the reproduction or generation of other animals or vegetables of the same species. These particles assume different figures, according to the receptacle into which they enter: falling into the womb, they unite into a fœtus; beneath the bark of a tree, they pullulate into branches; and, in short, the same particles that first formed the animal in the womb, contribute to encrease it's growth after parturition.

But let us attend a while to the arguments of this eloquent author to establish his principles: and when the envy that waxes on living merit is extinct, it is more than probable his system will universally prevail.

'The expansion and growth,' says he, 'of the different parts of man's body, being effected by the intimate penetration of organic particles, analogous to each of those parts, all the organic particles, in early life, are absorbed, and entirely employed in unfolding and augmenting his different members. But, when the body of man has attained to nearly it's full size, he requires not the same quantity of organic particles; the surplus is therefore sent from all parts into reservoirs destined for their reception. These reservoirs are the testes and feminal vessels. At this very period, when the growth of the body is nearly compleated, puberty commences, and every phenomenon attending it discovers a superabundance of

of nourishment: the voice changes into a deeper tone; the beard begins to appear; the parts destined for generation are suddenly expanded; and the seminal fluid fills the reservoirs prepared for its reception. This superabundance is still more evident in the female: it discovers itself by a periodic evacuation, which commences and terminates with the faculty of propagating; by a quick encrease of the breasts; and by a change in the sexual parts.

I conceive, then, that the organic particles sent from all parts of the body into the testicles and seminal vessels of the male, and into the ovarium of the female, compose the seminal fluid; which, in either sex, is a kind of extract from the different parts of the body. These organic particles, instead of uniting and forming an individual, similar to that in whose body they are contained, as happens in vegetables and some imperfect animals, cannot accomplish this end without a mixture of the fluid of both sexes. When this mixture happens, if the organic particles of the male exceed those of the female, the result is a male; but, if those of the female are most abundant, a female is generated. I mean not that the organic particles of the male or of the female could singly produce individuals: a concurrence or union of both is requisite to accomplish this purpose. Those small moving bodies, called spermatic animals, which, by the assistance of the microscope, are seen in the seminal fluids of all male animals, are, perhaps, organized substances proceeding from the individual which contains them; but, of themselves, they are incapable of expansion, or of becoming animals similar to those in whom they exist. That there are similar animalcules in the seminal fluids of females, is a circumstance which has often been disputed, but may nevertheless be proved.

The ancients, indeed, were so confident of the existence of a seminal fluid, that they distinguished the two sexes by their different modes of emission: *Quod intra se semen jactit, femina vocatur; quod in hac jactit, mas.* Arist. de Animal. But those physicians who attempt to explain generation by eggs, or by spermatic animalcules, insist that females have no particular fluid; that the mucus issuing from the parts has been mistaken for a seminal fluid; and that the opinion of the ancients on this subject is destitute of foundation. This fluid, however, does exist; and the doubts concerning it have arisen solely from attachment to system, and from the difficulty of discovering its reservoir. The fluid which is separated from the glands about the neck and orifice of the uterus, has no visible reservoir; and, as it flows out of the body, it is natural to think it is not the prolific fluid, because it cannot operate in the formation of the fœtus, which is performed within the uterus. But, if a little of the male fluid enters the uterus, either by its orifice or by absorption, and meets with the smallest drop of the female fluid, it is sufficient for the purpose of propagation. Thus, neither the observations of some anatomists, who maintain that the seminal fluid of the male can have no admission into the uterus; nor the opposite opinion maintained by their antagonists; have any influence on the theory we are endeavouring to establish.

But the strongest proof that the semen of both sexes conduces to propagation, arises from the resemblance of children to their parents. Sons, in general, resemble their fathers more than their mothers; and daughters have a greater resemblance to their mothers than their fathers; because, with regard to the general habit of body, a man resembles a man more than a woman; and a woman resembles a woman more than a man. But, as to particular features or habits, children sometimes resemble the father, sometimes the mother, and sometimes both. A child, for example, will have the eyes of the father, and the mouth of the mother; or the complexion of the mother, and the stature of the father. Of such phenomena it is impossible to give any explication, unless we admit, that both parents have contributed to the formation of the child, and consequently, that there has been a mixture of two seminal fluids.

Having endeavoured to place the system of this eminent writer in an impartial light, we must briefly advert to the objections that other hypothetical enquirers have urged against it.

In the first place, it has been said, that it is impossible to conceive organical substances without being organized; and that, if destitute of organization themselves, they could never make an organized body, as an infinity of circles could never make a triangle. It has been objected, that it is more difficult to conceive the transformation of these organic particles, than even that of the animal whose growth we are enquiring after; and, consequently, that this system endeavours to explain one obscure thing by another still more obscure.

It has also been farther maintained, that these little animals, which thus appear swimming and sporting in almost every fluid, when microscopically examined, are not real living particles, but some of the more opaque parts of the fluid, that are thus encreased in size, and seem to have a much greater share of activity than they actually possess. For the motion being magnified with the object, the smallest degree of it will appear very considerable; and a being almost at rest may, by these means, be apparently put into violent action. Thus, for instance, if we observe the sails of a windmill moving at a distance, they appear to go very slow; but, if we approach them, and thus magnify their bulk to our eye, they turn round with rapidity. A microscope, in the same manner, serves to bring our eye close to the object, and thus to enlarge it; and not only to encrease the magnitude of its parts, but also of its motion. Hence, therefore, it would follow, that these organic particles which are said to constitute the bulk of living nature, are but mere optical illusions; and that the system founded on them must likewise be illusive.

On subjects where certainty cannot possibly be obtained, the mind frequently becomes bewildered; and in the search of truth, which it cannot recognize even when found, loses itself in boundless scepticism, or endless conjecture. Happily, however, for mankind, the most abstruse enquiries are generally the most useless. Instead, therefore, of balancing accounts between sexes, and attempting to ascertain to which the business of generation most principally belongs, it will be more instructive, as well as entertaining, to begin with animal nature from its earliest retirements and evanescent outlines, and to pursue the incipient creature through all its changes, till the period of its coming forth perfect in its kind.

Animals have usually been distinguished, with regard to their manner of generation, into the oviparous and viviparous kinds; or, in other words, into those which bring forth an egg, which is afterwards hatched into life; and those which bring forth their young alive and perfect. In one of these two modes all animals were supposed to have been produced, and all other kinds of generation were regarded as imaginary or erroneous. But later discoveries have taught us to be more cautious in drawing general conclusions; and have even induced many to doubt whether animal life may not be produced merely from putrefaction.

Indeed, the infinite number of creatures that seem to derive their birth from putrid substances, and the variety of minute insects seen floating in liquors, by the assistance of the microscope, appear to favour this opinion. Buffon observes, that there are perhaps as many beings, which either live or vegetate, produced by a fortuitous assemblage of organic particles, as by a constant and successive generation. 'It is to such productions,' continues he, 'that we ought to apply the axiom of the ancients, *corruptio unius, generatio alterius.* In the corruption, the fermentation, or rather in the resolution of animal or vegetable substances, we find real animals, capable of propagating their species, though they were not themselves produced in this manner. These varieties are more extensive than we imagine. Though it be right to generalize our ideas, to assemble the effects of nature under one point of view, and to class her productions; yet numberless shades, and even degrees, in the great scale of being, will always escape our observation.'

But whether we admit or disallow the truth of equivocal generation, it is certain that the former distinctions of generation were too limited: for we find many animals produced neither from the womb nor from the shell, but merely from cuttings; so that to multiply life in some creatures, it is sufficient to multiply the dissection. This being the simplest method of generation, and that in which life seems to require the smallest preparation for its existence, we shall begin with it, and thus proceed from the meanest to the most elaborate.

The earth-worm, the millipedes, the marine-worm, and many other insects belonging to the watery element, may be multiplied by being cut in pieces: but, of all other existences endowed with this extraordinary method of propagation, the polypus is the most remarkable; and from hence we shall select our description.

The structure of this creature may be compared to the finger of a glove, open at one end, and shut at the other. The closed end represents the tail of the polypus, with which it fixes itself to any substance it happens to approach; the open end may be compared to the mouth; and, if we conceive six or eight small strings issuing from this end, we shall have a distinct idea of its arms, which it can erect, lengthen, and contract, at pleasure, like the horns of a snail.

The polypus is extremely voracious, and makes use of its arms to catch and entangle such minute insects as come within its reach. It lengthens these arms several inches, keeps them separated from each other, and thus occupies a large space in the water, where it resides. These arms, when extended, are as fine as threads of silk, and possess a most exquisite

exquisite degree of feeling. If a small worm happens to get within the sphere of their activity, it is quickly entangled by one of these arms; and soon after, the others being drawn in the same direction to its aid, the worm is brought to the mouth of the animal, and speedily devoured, colouring the body as it is swallowed. Thus much is necessary to be observed of this animal's mode of living, to evince that it is a real existence, and not of the vegetable tribe; but more extraordinary circumstances still remain to be unfolded concerning it. If examined with a microscope, there are seen several little specks, like buds, pullulating from different parts of its body; and these soon after appear to be young polypi, which, like the larger sort, begin to cast their little arms about for prey, in a similar manner.

Thus every polypus has a new colony sprouting from its body; and these nascent ones, even while attached to the parent animal, become parents themselves, having a still smaller colony budding from them: all, at the same time, busily employed in searching for their prey; and the food of any one of them serving for the nourishment, and circulating through the bodies of all the rest. This society, however, is every hour dissolving; those newly produced are seen at intervals to quit the body of the large polypus, and become, shortly after, the head of an incipient colony themselves.

After this manner, the polypus multiplies in a natural course; but it may be increased by a much shorter and expeditious way. Though cut into a thousand pieces, each part still retains its vivacious principle, and each shortly becomes a distinct and complete animal. Whether cut longitudinally or transversely, it is all the same: it gains by our endeavours, and multiplies by apparent destruction. The experiment has been so repeatedly tried, that nothing can be better confirmed than this method of generation, which may be strictly called philosophical. The famous Sir Thomas Brown hoped one day to be able to produce children by the same means as trees are produced: the polypus is certainly multiplied in the manner related; and every philosopher may thus, if he pleases, boast of a numerous, though useless progeny, without being accused of cruelty in his experiments, as he will be encreasing animal life, instead of destroying it.

This mode of generation, from cuttings, may well be considered as the simplest of all possible kinds; and may serve to shew how little pains Nature takes in the formation of her lower and humbler productions. As the removal of these from inanimate into animal existence is but small, few preparations are either made or become necessary for their journey. No organs of generation seem provided, no womb to receive, no covering to protect them in their state of transition. The little reptile is quickly equipped for all the functions of its humble sphere; and, in a short time, arrives at the summit of its contemptible perfection.

The generation of animals from an egg constitutes the next superior degree of generation. In this manner all birds, the generality of fishes, and many of the insect tribes, are produced. An egg may be considered as a womb, detached from the body of the parent animal, in which the embryo is but just commencing to be formed: it may be regarded as a kind of imperfect delivery, in which parturition takes place before the offspring has attained its complete formation. Fishes and insects, indeed, most usually commit the care of their eggs to hazard; but birds, which are more perfectly organized, are found to hatch them into maturity by the warmth of their bodies. However, any other heat, of the same temperature, would answer the purpose as effectually; for either the warmth of the sun, or of a stove, is equally powerful in bringing the animal inclosed in the egg to a state of perfect existence. Nature has taken care of the viviparous animal in every stage of its being. That force which separates it from the parent, separates it from life; and the embryo is shielded with unceasing protection, till it arrives at exclusion.

It is far otherwise with the little animal in the egg: often totally neglected by the parent, and always separable from it, every accident may retard its growth, or even destroy its existence. Besides, art, or even chance, may also bring this animal to a state of perfection; so that it can never be considered as a complete production of nature, in which so much is left for accident to accomplish or retard.

But, inferior as this species of generation unquestionably is, its consideration will afford great insight into that of nobler animals, as we can here watch the progress of the growing embryo in every period of its existence, and catch it in those very moments when it seems starting into motion. Malpighi and Haller have exerted particular industry on this curious subject; and, with a patience almost equal to that of a sitting hen, have attended incubation through all its stages. From them, therefore, we have a wonderful history of the chicken in the egg, and of its gradual advances to complete existence.

It would be tedious and uninteresting to describe those parts of the egg which are well known and obvious, such as its shell, its white, and its yolk; but the disposition and uses of these are not so apparent. Immediately under the shell lies that common membrane, or skin, which lines it internally, every where adhering to it very closely, except at the broad end, where a small cavity is left, which is replete with air, and which encreases as the inclosed animal becomes larger. Under this membrane are contained two whites, though seemingly only one, each wrapped up in a membrane of its own, one white within the other. In the centre of all this is the yolk, wrapped round, likewise, in its own membrane. At the end of this are two ligaments, denominated chalazæ, forming, as it were, the poles of this microcosm; being dense white substances, made from the membranes, and serving to keep the white and the yolk in their natural places.

It was the opinion of Mr. Derham, that these ligaments answered likewise another purpose: for a line being drawn from one ligament to the other, would not pass directly through the middle of the yolk, but rather towards one side; and would divide the yolk into two unequal parts, by which means the chalazæ served to keep the smallest side of the yolk always uppermost; and in this part he supposed the cicatricula, or first speck of life, to reside; which, by being uppermost, and consequently next the hen, would thus enjoy the warmest situation.

But this is rather ingenious than real; the incipient animal being found in all situations, and appearing uninfluenced by any. This cicatricula, which is the part where the animal first begins to shew signs of life, is not much unlike a vetch or lentil, lying on one side of the yolk, and within its membrane. All these contribute to the convenience or support of the little animal; the exterior membranes and ligaments preserve the fluids in their proper places; the white serves as nourishment; and the yolk, with its membranes, after a due space, becomes a part of the animal's body. Such is the nature of the egg of an hen; and the same description applies to those of birds of every size.

Previous to their placing the eggs under the hen, the naturalists from whom we derive our principal information on this subject, well examined the cicatricula, or little spot, already mentioned; which may justly be considered as the most important part of the egg. In such as were impregnated by the cock, this was found to be large; but in those laid without the cock, very small. It was found, on a microscopic examination, to be a kind of bag, containing a transparent fluid, in the centre of which the embryo was observed to reside. The embryo resembled a composition of little threads, which the genial warmth of future incubation tended to enlarge, by varying and liquifying the other fluids contained within the shell, and thus pressing them either into the pores or the tubes of their substance.

The eggs being placed in a proper warmth, either exposed to the sun, or in a stove, after six hours, the speck begins to dilate, like the pupil of the eye. The head of the chicken is distinctly seen, with the back-bone, somewhat resembling a tadpole, floating in its ambient fluid; but as yet seeming to assume none of the functions of animal life. In the space of six hours more, the little animal is more distinctly seen; the head becomes more visible, and the vertebrae of the back more plainly perceptible. All these preparatory signs of incipient existence are encreased in six hours more; and, at the end of twenty-four, the ribs begin to assume their places, the neck to lengthen, and the head to incline to one side.

The fluids in the egg seem also at this period to have changed place; the yolk, which was before in the centre of the shell, approaching nearer to the broad end; the aquatic part of the white is, in some measure, evaporated through the shell; and the grosser parts sink to the small end. The little animal appears to turn towards that part of the broad end, in which a cavity has been described, and, together with its yolk, seems to adhere to the membrane there.

At the end of forty hours, the great work of life seems fully begun, and the animal plainly appears to move; the back-bone, which is of a whitish colour, thickens; the head is still more inclined towards one side; the first rudiments of the eyes shew themselves; the heart beats, and the blood already commences its circulation. The parts, however, still continue fluid; but, by degrees, become more and more tenacious, and harden into a kind of jelly.

At the expiration of two days, the liquor in which the chicken swims seems to encrease; the eyes exhibit the appearance of two small bladders; and the heart palpitates in the manner of every embryo where the blood does not circulate

culate through the lungs. In fourteen hours more, the chicken has acquired additional strength; the head, however, is still bent downwards; the veins and arteries begin to branch, in order to form the brain; and the spinal marrow is seen stretching along the back-bone.

In three days the whole body of the nascent animal appears bent; the head, with its two eye-balls, and their different humours, now distinctly disclose themselves to view; and five other vesicles are seen, which soon unite to form the rudiments of the brain. The outlines also of the thighs and wings begin to be distinguished; and the body seems to gather flesh.

At the end of the fourth day, the vesicles that compose the brain approach each other; the wings and thighs appear more solid; the whole body is covered with a gelatinous substance resembling flesh; the heart, that was hitherto exposed, is now concealed within the body by a very thin transparent membrane; and at the same time the umbilical vessels, which unite the animal to the yolk, now appear to proceed from the abdomen.

After the fifth and sixth days, the vessels of the brain begin to be covered over; the wings and thighs lengthen and expand; the belly is closed up and becomes tumid; the liver is perceived within it very distinctly, still of a very dusky white colour; both the ventricles of the heart are discerned, as if they constituted two separate hearts; the whole body of the chicken is covered over; and the traces of the incipient feathers are already perceptible.

The seventh day, the head appears enlarged; the brain is wholly clothed over; the bill begins to appear; and the wings, the thighs, and the legs, have acquired their perfect figure.

Hitherto, however, the animal appears as if it had two bodies; the yolk is united to it by the umbilical vessels proceeding from the belly, and is furnished with its vessels, through which the blood circulates as through the body of the chicken, forming a greater bulk than that of the animal itself. But towards the end of incubation, the umbilical vessels shorten the yolk; and with it the intestines thrust up into the body of the animal, by the action of the muscles of the belly; and the two bodies, as they appear, are thus formed into one.

During this state, all the organs are observed to perform their secretions; the bile is found to be separated, as in grown animals; but it is fluid, transparent, and tasteless: the chicken then appears also to have lungs.

On the tenth day, the muscles of the wings appear, and the feathers begin to be protruded. On the eleventh, the heart, which had hitherto seemed divided, begins to unite; and the corresponding arteries unite, like the insertion of the fingers into the palm of the hand.

By the eleventh day, the animal being thus compleatly formed, begins to gather strength, becomes more uneasy in its situation, and exerts its vital powers with encreasing force. For some time before it is able to break through its prison, it is heard to chirrup, receiving a sufficient quantity of air for this purpose from the cavity lying between the membrane and the shell, and which must necessarily contain air to resist the external pressure.

At length, on the twentieth day in some birds, and later in others, the inclosed animal breaks the shell within which it had been confined, with its beak; and, by repeated efforts, at last procures its liberation.

From this minute history of incipient life, in a humble race in the scale of creation, we may readily perceive, that those parts which are most conducive to life are first begun: the head and the back-bone, which enclose the brain and the spinal marrow, though both are too limpid to be discerned, are the first that appear to exist; the beating of the heart is perceived soon after; the life's noble parts seem to spring from these; the wings, the thighs, the feet, and, lastly, the bill. Whatever, therefore, the animal possesses double, or whatever it can live without the immediate use of, are latest in production: Nature thus appears sedulous in applying to the formation of the nobler organs, without which life would be but of short continuance, and would be begun in vain.

From analogy we may infer, that the resemblance between the incipient animal in the egg, and the embryo in the womb, is very striking; and this similitude has induced many to assert, that all animals are produced in like manner from eggs. Those who maintain the ovarious system, consider an egg excluded from the body by some, and separated into the womb by others, as actions of the same kind; with this only difference, that the nourishment of the one is retained within the body of the parent, and encreases as the embryo happens to want the supply; the nourishment of the other is prepared all at once, and furnished by the producing animal as a stock entirely sufficient for the future support of its offspring.

But, leaving this to the discussion of anatomists, let us proceed rather with facts than opinions; and, as we have seen the progress of an oviparous animal, let us likewise trace that of a viviparous one.

In the investigation of this subject, De Graaf has, with almost unexampled patience and sedulity, attended the progress and increase of various animals in the womb, and minutely marked the changes they undergo. Having dissected a rabbit half an hour after impregnation, he perceived the horns of the womb, that embrace and communicate with the ovary, to be redder than before; but no other change was visible in the other parts. Having dissected another, six hours after, he perceived the follicles, or the membrane covering the eggs contained in the ovary, to become reddish. In a rabbit dissected after twenty-four hours, he perceived, in one of the ovaries, three follicles; and, in another, five, that had undergone some change, exhibiting a dark and reddish appearance, whereas they usually are transparent. In one dissected after three days, the horns of the womb were observed to embrace the ovaries very closely; and he observed three follicles in them, much larger and harder than before.

Pursuing his inquiry, he also found two substances resembling eggs actually separated into the horns of the womb, each about the size of a grain of mustard-seed: these were separately inclosed in a double membrane, the inner parts being replenished with a very limpid liquor.

After four days, he found in one of the ovaries four, and in the other five follicles, emptied of what he calls their eggs; and, in the horns corresponding with these, he observed an equal number of eggs thus separated, which were grown still larger. In five days time, they were still more encreased in size: in seven, they were found as big as a pistol-bullet, each covered with its double membrane, and these much more distinct than before.

At the expiration of nine days, having examined the liquor contained in one of these eggs, he found it was become less fluid, and limpid. In ten days, a cloud seemed to thicken on its surface, and to form an oblong body, of the figure of a little worm; and in twelve days, the figure of the embryo was distinctly perceptible, and even its parts were distinguishable. In the region of the breast, he perceived two bloody, and two whitish specks.

Fourteen days after impregnation, the head of the embryo was become large and transparent, the eyes prominent, the mouth open, and the rudiments of the ears began to appear: the back-bone, which was of a whitish colour, inclined towards the breast; the two bloody specks, observed before, now exhibited the outlines of the two ventricles of the heart; and the two whitish specks on each side, appeared to be the rudiments of the lungs. Towards the region of the belly, the liver began to disclose itself, and to assume a reddish colour; and a little intricate mass, like unravelled thread, soon appeared to be the origin of the stomach and intestines. The legs speedily became visible, and assumed their natural position; and from that time forth, all the parts being formed, every day served to develope and expand them still more, till the thirty-first day arrived, on which the rabbit brought forth her young in due course of nature.

Thus having surveyed the different modes and stages of generation in the more ignoble animals, let us take a view of its progress in man, and investigate the feeble beginnings of our own existence.

An account of the lowliness of our own origin, if it should not prove entertaining, will, at least, serve to humble us; and it may diminish our pride, though it fails to gratify our curiosity. In this case we cannot so accurately trace the commencement of the incipient animal, as in the former instances; for the opportunities of inspection are but few and accidental. We must therefore content ourselves to fill up the blanks of our history with rational conjecture, where ocular demonstration has never been procured.

Immediately after conception, we have no regular idea of the state of the embryo in the womb. However, anatomists inform us, that four days after conception, an oval substance is perceived in the womb, about the magnitude of a small pea, but longer one way than the other. This little body is formed by an extremely fine membrane, inclosing a liquor bearing a strong resemblance to the white of an egg; and in this, several small fibres, united together, have been distinguished, which unquestionably form the first rudiments of the embryo. Besides, there are seen another set of fibres, which soon after form themselves into the placenta, or that body by which the incipient being is supplied with nourishment.

At the space of seven days after conception, we can readily distinguish by the eye the first lineaments of the child in the womb. However, they are as yet without form; being a small gelatinous mass, yet exhibiting the rudiments of the head; the trunk being also in some measure distinguishable, together with a small assemblage of fibres issuing from the body of the infant, which afterwards become the blood-vessels that convey nourishment from the placenta to the child while inclosed in the womb.

Fifteen days after conception, the head becomes more distinctly visible, and even the most prominent features of the visage begin to appear. The nose is a little elevated; there are two black specks in the place of eyes; and two little apertures, where the ears are afterwards formed. The body of the embryo is also grown larger; and both above and below, are two little protuberances, which mark the places from whence the arms and legs are destined to proceed. The whole length of the fœtus at this time is less than half an inch.

Three weeks after conception, the body has received but very little encrease; but the legs and feet, with the hands and arms, are become unfolded. The growth of the arms is more rapid than that of the legs; and the separation of the fingers takes place sooner than the toes. About this time, the internal parts are found, on dissection, to be slightly distinguishable. The places of the bones are marked by small filiform substances, that are yet more fluid than a common jelly. Among them, the ribs are perceivable, exhibiting the same appearance, disposed on each side of the spine; and even the fingers and the toes scarcely exceed the thickness of a hair.

The embryo, in about the space of a month, is nearly an inch long; the body is bent forward, a situation it almost uniformly assumes in the womb; either because this posture is most convenient, or because it requires least room. The human figure now becomes extremely evident; every part of the face is distinguishable; the body is sketched out; the bowels appear like threads; the bones are still quite soft, but in some places begin to assume a greater rigidity; the vessels communicating with the placenta are plainly seen issuing from the navel, and beginning to spread themselves in the placenta. If we may give credit to Hippocrates, that great father of physic, the male embryo develops sooner than the female: he adds, that the parts of the body of the male are distinguishable at the end of thirty days; while those of the female are not so evident till the expiration of forty.

In six weeks, the embryo has acquired the length of two inches; the human figure daily becomes more and more distinct; the motion of the heart is almost perceptible by the naked eye; and, in an embryo of fifty days old, it has been observed to palpitate for some time after it's removal from the womb.

In two months, the ossification is perceivable in the arms and thighs of the embryo, and in the tip of the chin, the under jaw being greatly advanced before the upper. These parts, however, may still be considered as bony points, rather than as real bones. The umbilical vessels, which before went side by side, now begin to be twisted over each other, like a rope, and go to join with the placenta, which as yet remains very small.

At the expiration of three months, the embryo is above three inches long, and weighs as many ounces. Hippocrates observes, that the mother does not become sensible of the child's motion till that period; and he adds, that in female children this motion is not perceptible till the end of four months. However, this is not an observation that can be uniformly relied on; for some women assert, that they perceive themselves to be quick with child (to use their own mode of expression) at the end of two months; so that this quickness seems rather to originate from the proportion between the child's strength, and the mother's sensibility, than from any determinate space of time. At all times, indeed, the child is equally alive; and consequently, those juries of matrons, which in this country frequently determine on the pregnancy of criminals, should not enquire whether the culprit be quick, but whether she be enfeint; if the latter be perceivable, the former follows of course.

Four months and an half after conception, the embryo is from six to seven inches in length; and all the parts have received a proportionable encrease. The very nails begin to appear on the fingers and toes; and the stomach and intestines assume their functions of receiving and digesting. A liquor is found in the stomach similar to that in which the embryo floats; in one part of the intestines, a milky substance; and, in the other, an excrementitious. There is also found a small quantity of bile in the gall-bladder; and some urine in it's proper receptacle.

By this time also, the posture of the embryo seems determined and fixed. The head is bent forward, so that the chin seems to rest on the breast; the knees are raised up towards the head; and the legs are bent backwards, somewhat resembling the attitude of those that sit on their haunches. Sometimes the knees are raised so high as to touch the cheeks, and the feet are crossed over each other; the arms are laid on the breast; while one of the hands, and often both, touch the visage; sometimes the hands are shut, and sometimes also the hands depend by the sides. These are the most usual postures that the embryo assumes; but there it is frequently known to change; and from these alterations arise those frequent uneasy sensations which pregnant women are very liable to feel.

Thus situated, the nascent being is furnished by nature with all things proper for it's support; and, as it encreases in size, it's nourishment is found also to encrease with it. When it first begins to grow in the womb, that receptacle, from being naturally very small, becomes proportionably larger; and, what is more extraordinary, at the same time becomes thicker also. The sides of a bladder, we well know, the more they are distended, the thinner they are; but, in this case, the larger the womb grows, the more it thickens. Within this the embryo is still farther involved, in two membranes, called the chorion and amnios; and floats in a thin transparent fluid, on which it seems, in some measure, to subsist. However, the great store-house, from whence it's chief nourishment is derived, is the placenta; a red substance, somewhat resembling a sponge, which adheres to the inside of the womb, and communicates by means of the umbilical vessels with the embryo. These umbilical vessels, consisting of a vein and two arteries, issue from the navel of the child, and are ramified on the placenta, where they seem actually to constitute it's substance; and, if it may be so expressed, to suck up their nourishment from the womb, and it's contained fluids. The blood, thus received from the womb by the placenta, and communicated by the umbilical vein to the body of the embryo, is conveyed to the heart; where, without ever passing into the lungs, as in the infant born, it takes a shorter course: for, entering the right auricle of the heart, instead of passing up into the pulmonary artery, it seems to break this partition, and proceeds directly through the body of the heart, by an aperture called the foramen ovale; and from thence to the aorta, or great artery, by which it is dispersed into all parts of the body.

Thus, in a considerable measure, we find the placenta supplying the place of lungs; for as the little being can receive no air by inspiration, the lungs are therefore entirely useless. But we see the placenta converting the fluid of the womb into blood, and sending it by the umbilical vein to the heart; from which it is dispatched, by a quicker and shorter circulation, through the whole frame.

After this manner the embryo repofes in the womb, supplied with that nutrition which it's necessities require, and furnished with those organs which are adapted to it's situation. As it's sensations are few, it's wants are in the same proportion; and it is probable, that an almost continuous sleep, with a few intervals of waking, fills up the earliest periods of existence. As the little creature, however, gains strength and size, it seems to become more watchful and restless: even in the womb, it begins to feel the want of something unpossessed; a sensation that seems coeval with the dawn of human life, and which never quits us till death. Even then the embryo begins to struggle for the acquisition of a state more marked by pleasure and pain; and, from about the sixth month, commences it's warnings to the mother of the greater pain she is destined to endure.

The duration of pregnancy in women, is usually nine months; but there have been many instances of children born at seven, that have been perfect, and exhibited no marks of premature birth; while parturition has sometimes been delayed till nearly the expiration of the tenth month.

When the appointed time approaches, the infant begins to redouble it's efforts for liberty. The head is applied downwards, towards the aperture of the womb; and by reiterated efforts it endeavours to extend the same. These exertions produce the pain which all women in labour in some degree or other feel: those of strong constitutions the least; those who are weakly, with most severity; since we learn that the African women always deliver themselves; and in a few hours afterwards are perfectly recovered; while the European women need assistance, and require some time to re-establish their health, after the violence of the shock parturition occasions.

The efforts of the child at last prevail: it's head breaks through those natural obstacles which are formed to yield, and it issues into life. The blood which had hitherto passed through the heart, as has been previously described, now takes a wider

wider circuit; the foramen ovale closes; the lungs, hitherto inactive, now first assume their functions; the irruption of the air distends them; and this produces the first sensation of pain, which the animal expresses by a shriek: so that the commencement of our lives, as well as their termination, is marked with pain.

On a due comparison of the different modes of generation, we shall necessarily draw this conclusion, that the most laboured is the most perfect. Of all others, man seems the slowest in coming into life, as he is the slowest in arriving at perfection: other animals, of the same magnitude, seldom remain in the womb above six months, while he continues nine; and, even after his birth, his state of imbecility appears prolonged above that of any other.

We may also observe, that the generation is the most compleat by which the fewest animals are produced. Nature, by attending to one at a time, seems to exert all her efforts in bringing it to adequate perfection; but, where this attention is divided, the animals so produced come into the world with partial advantages. Thus twins are never, while infants at least, so strong or so large as those that come singly into the world; each having in some measure deprived the other of its right; as that support which Nature intended for one, has been lavishly divided.

And as the most noble animals are produced singly, so we find that creatures of this description are likewise the least prolific: these usually produce singly, and at long intervals; while the more ignoble kinds are more rapid in their returns, and more numerous in their births. All the oviparous tribes, and even some of the viviparous animals, encrease in a seeming proportion to their minuteness and imperfection. Nature appears lavish of life in the lower orders of creation; and, as if she intended such merely for the use of the higher classes of animated beings, she appears to have bestowed more attention in multiplying the number than in completing the kind. Thus, while the horse and the elephant produce but one at a time, the spider and the beetle bring forth in thousands: and even among the smaller quadrupeds, all the inferior kinds are extremely fertile.

Hence it is evident, that the smallest animals multiply in the greatest proportion; and we have abundant reason for gratitude to Providence, that the most formidable animals are the least fruitful. Had the lion and the tiger the same fecundity with the rabbit or the rat, all the arts of man would be ineffectual to oppose these fierce invaders; and they would long ere now have become masters of those who are themselves emphatically stiled the lords of the creation. But Heaven has opposed to man only such enemies as he has received strength and art to conquer; and as large animals require proportional supplies, it has withheld life where it has not furnished the proper means of subsistence.

In consequence of this pre-established order, the most perfect animals seldom begin to procreate till they have nearly acquired their full growth; while the inferior tribes frequently generate before they have arrived at half their natural size.

In whatever light, therefore, we view this subject, we shall find room for admiration and thankfulness; we shall be impressed with a due sense of the superior advantages conferred on man, both in the mode of his production, and in the means provided for his future welfare: and while we acknowledge the distinctions which Providence has bestowed on our material part, let us not forget the much more exalted nature of the soul; that endowment which places us infinitely above the highest orders of irrational existence, and which gives us a title to immortality!

A

NEW DICTIONARY

OF

NATURAL HISTORY;

OR,

COMPLEAT UNIVERSAL DISPLAY

OF

ANIMATED NATURE.

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A BACATUAIA. An American fish, in shape, size, and figure, resembling the common plaife; or, rather, the European doree, or faber. It's mouth is small, and destitute of teeth; and the eyes have each a black pupil, with a fine silvery iris. It is furnished with five fins: one of which is dorsal, and another abdominal, each running to the tail; there are two at the gills; and the tail, which is considerably forked, makes the fifth. This fish, which is commonly caught on the shores of the Brazils, is esteemed wholesome food. Artedi makes it a species of the zeus; and Linnæus the zeus gallus, belonging to the thoracic order of fishes.

ABACAY. One of the numerous species of parrots found in the Philippine islands, called also by the natives calangay.

ABDOMINAL FISH. A distinct order in the Linnæan system, distinguished by having the ventral fins placed behind the pectoral in the abdomen; and comprehending seventeen genera, and an hundred and twenty-seven species.

ABERDAVINE. The name usually given in London to the fishkin, where it is sold as a song-bird, and sometimes at a very considerable price. The crown of the male is black, the neck and back are green, except the shafts on the latter, which are black; the rump, throat, and breast, are of a greenish yellow; the belly is white; the vent feathers are yellowish, and marked with central oblong dusky spots; the pinion quill is of a dusky hue, edged with green; and the exterior webs of the nine succeeding quill-feathers are green, which colour widens by degrees on every feather, till it occupies half the length: from the tenth feather nearly the lower half of each feather is yellow, and the upper black; the exterior coverts of the wings, and the two middle feathers of the tail, are black; the rest of the tail above half-way up is of a delightful yellow, tipped with black.

The female is distinguished by the paleness of her colours, and by her throat and sides being

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white spotted with brown; and her head and back are of a greenish ash-colour, also spotted with brown.

In Suffex the Aberdavine obtains the name of the barley-bird, because it usually visits that country about the barley seed-time; though the seasons at which it arrives in England are very uncertain. It is a bird of passage, and supposed to come from Russia and Germany. In the woods on the banks of the Danube, we are informed by Kramer that it forms it's nest with such amazing security, that though there are an infinite number of young birds to be seen, no one could ever discover a nest.

ABLET, or ALBLEN. A name given by some naturalists to the common bleak, a small freshwater fish, called in Latin alburnus, and which appears to be truly and properly a species of the cyprinus. Artedi distinguishes it by the name of the five-inch cyprinus with twenty rays in the pinna ani.

ACACALOTL. An American bird, by some called the corvus aquaticus, or water-raven. The male of this species measures four spans from it's beak to the tip of it's tail; and it's legs are a span and a half long. The beak is about six inches long, of a blue colour, and incurved like a bow. The head is small; the breast and belly are of a variegated red and brown colour; and the back is beautifully intermixed with a vivid purple, black, and green. The wings are of a delightful green, which looks very bright and glossy in the sun.

This elegant bird is a native of Mexico, and frequents the rivers and lakes, where it feeds on fish. It is moderately fleshy, but coarse, and of a rank fishy taste, though not reckoned unwholesome.

ACANTHIAS. A name usually given to the fish whose skin is used in polishing by cabinet-makers and other artificers, and by them called simply fish-skin. See **GALEUS**.

ACANTHOPTERYGII. A distinct order of fishes; whose general characteristic is, that the rays of the fins are bony, and some of them prickly at their extremities. Under this class are comprehended the seventeen following genera: gasteroste-

us, cheelodon, zeus, cottus, trigla, scorpcena, trachinus, perca, sciæna, sparus, labrus, mugil, scomber, xiphias, gobius, blennius, and ophidion. The term is derived from the Greek akantha, a thorn; and pterygion, a fin.

ACARA. A fresh-water fish of the Brazils, esteemed very delicate and nutritious food. It's length seldom exceeds four inches; the mouth is small, the jaws are rough like a file, and the back rises like that of the perch. One long back fin, supported by a great number of rigid and prickly rays, runs to the tail. The fins are all brown; the scales are large; the back is of a glossy brown; the sides and belly are white; and the tail is undivided. A large black spot appears on each side near it's middle, and there is another near the tail.

ACARAAYA. A fish caught on the Brazilian shores, by some called garanha. It resembles the carp, and commonly grows to three feet in length. The lower jaw is furnished with an even range of sharp teeth, like small needles; and the upper has two very long teeth, with a great number of short ones. The eyes are large and red; and the tail is broad, and a little furcated. The scales are moderately large, of a silvery hue, with an admixture of purple. The under part of the head and the belly are of a pure white; and the fins of a fine pale red, except those under the belly, which are white, slightly edged with red. This fish is much used in Brazil, both fresh and salted.

ACARAMUCU. A fish caught in the Western Ocean, and some other seas, of a very singular and remarkable form. It's body is flatted and taper, about eight inches long, and three broad. The mouth is round, but so small as scarcely to admit the end of a man's little finger. In the fore-part of the mouth, both in the upper and under-jaw, are triangular and sharp teeth, which easily pierce. On each side, exactly below the eyes, are two square fissures, which supply the place of gills; and on the ridge of the back, directly behind the eyes, is placed a fine, slender, pointed horn, of a cylindrical shape, and about three inches long, standing nearly erect, though with a little incurvation backwards. The skin is smooth, of a variegated greyish and brownish colour, and entirely destitute of scales. This fish usually feeds on sea-weeds, and it's flesh is reckoned improper to be eaten.

ACARAPEBA. An American fish, to which some have also given the name of brofeme. It grows to nearly a foot in length, and four inches in breadth; the body is somewhat broad and flattened, and covered with large scales of a fine silvery whiteness. The mouth is large, but destitute of teeth; and the tail is furcated. It has one long black fin, the anterior rays of which are rigid and prickly, and the posterior ones soft and flexible. The other fins are of a pure white, like the rest of the body. This fish seems to be a species of finaris.

ACARAPINIMIA. A Brazilian fish of the cantharus kind, and not very dissimilar to the cantharus of the Mediterranean described by Ray.

ACARAPITAMBA. A fish belonging to the Brazilian seas, of an oblong figure, resembling the mullet, and usually growing to upwards of two feet in length. The mouth and teeth are extremely diminutive in proportion to it's size. Along the back runs one long fin, which reaches nearly to the tail, supported by rigid and prickly rays. The tail terminates in two oblique horns; the scales are large, and of a purplish colour, with a beautiful admixture of blue; and along the mid-

dle of each side there runs from the gills to the tail a very broad and elegant gold-coloured line. The back, till it reaches this line, is variegated with small gold-coloured spots; and, under the line, the sides are likewise variegated with beautiful longitudinal small gold-coloured lines of a paler tinge than the broad one. The belly of this curious fish is white, and it's fins are yellow.

ACARAPUCU. A Brazilian fresh-water fish, about eighteen inches long, of a rounded body and small flat mouth. This fish, which is esteemed very wholesome food, has no teeth, but can conceal it's mouth at pleasure. The tail is long and furcated; the scales are of a silvery hue; the back exhibits a fine golden gloss, shining through the whiteness; and there are six large blue spots on the sides. The back, tail, and side fins, are of a pale blue; and the belly fins are of a yellowish tinge. This fish is very palatable and nutritious.

ACARAUNA. A fish caught in the American seas, of which Willoughby describes two species: the one called simply Acarauna; the other Acarauna quadrata, or square Acarauna; and, by our navigators, the old wife.

The common Acarauna is of a broad and flattened shape, usually growing to about four or five inches in length; covered with small blackish scales, and furnished with a large furcated tail. It has two fins under the gills; two more under the belly; a fifth running all along the back; and a sixth corresponding with it from the anus to the tail. The mouth is small and narrow; the teeth are diminutive and acuated; and the eyes small. It contains an extremely sharp thorn, or prickle, on each side near the tail, which it can sheath or unsheath at pleasure, and with which it occasionally annoys any fish which comes in it's way.

The square Acarauna, or old wife, nearly resembles the former in size; but, being seldom caught, it is deemed worthy a place in the cabinets of the curious. It is of a pale brown colour; with the tail and fore-part of the body of a pale yellow, or rather a straw-colour. It is clothed with scales furrowed with slight parallel lines, except the anterior part of the head, which is covered with a naked, but rough skin. The top of the head rises into an acute angle; the forehead is flat; the eyes are round, large and prominent; the mouth is exceedingly small; and the teeth are slender, and close set. The upper-jaw contains four sharp thorns growing on each side; and the lower, two very large and sharp ones, bending downwards, in shape and formation resembling a cock's spur; from which run up two rows of small prickles to the eyes.

ACARNAN. A small sea-fish very common in the Mediterranean, and generally exposed to sale among rubellios or erythrini, called by the fishermen fravolino. It greatly resembles the erythrinus; but as that is of a fine red, this, on the contrary, is of a silvery whiteness. The mouth is moderately large; the teeth are slender, and pointed; and the eyes, which are large, are of a beautiful yellow. The fins are perfectly white, except having each a black spot at their origin. Naturalists are at a loss to determine whether this fish is any ways different from the erythrinus except in colour, which is not held a sufficient distinction to constitute another species.

ACARUS, or ACARI. A species of vermin lodged under the cutis; where, preying on the parts, it excites an itching, and raises pimples. A German physician has traced the origin of the Acari, which

which he imputes to milk-meats turning stale and sour. The seat of these insects is chiefly in the hands and feet, though they are sometimes found in the arms and legs.

ACARUS is also used by naturalists as a classical name of the lice of animals, whose genera are almost as numerous as the animals on which they breed. In the Linnæan system it is a genus of aptera, with eight legs, two eyes at the sides of the head, and two jointed tentacula, comprehending thirty-five species, of which the following are the most remarkable.

Acarus with very long legs, called by Mousset the long-legged spider, and by Ray and others the ash-coloured crested spider.

Acarus with nippers like crabs, has the fore-legs formed like those of a crab or scorpion, for which reason it is by some called the scorpion spider. This insect has a roundish inflated body of a whitish colour, covered with a thin smooth skin; the head is small, and of a dusky hue towards the mouth. It is frequently found in old rotten wood.

Acarus with very long fore-feet, is about the size of a nit. The body is long, and of a wax-colour, the legs being pale. It is found chiefly on champignons.

Acarus with the second pair of legs very thick, is always seen on the ground, particularly in gardens. It is armed with four exceeding small teeth; its size is inferior to that of a louse; and its colour is a dull chestnut.

Acarus with the third pair of feet largest, by some called the bird flea, from its being found on that tribe of animals.

Acarus red, with the fore-feet longest, and the hind part of the belly forked, is remarkable for having two small horns near the lower belly.

Acarus, with a livid belly of a fallow colour, oval before and with feelers like clubs, by some naturalists is called the dog-louse, and is known by a black round spot near the base of the lower body. The breast is scarcely perceptible; the head is small and black; the mouth is forked; and the feet are black.

Acarus depressed, ash-coloured, with rough sides, is a very small insect, which appears in the beginning of spring, but at other times retires into the earth.

Acarus with a depressed belly, by some called the red little water-spider, lives entirely on the water, is often seen on lakes, and runs with great velocity.

Acarus with a depressed belly, by Ray called the red small earth-spider, is found only in the earth.

Acarus red, with sides of a darker colour, is a very common insect, living upon trees, and remarkable for its swiftness.

These are the most considerable Acari; but so numerous are their tribes, and so widely are they disseminated through animate and inanimate objects, that neither the naturalist can enumerate them, nor the naked eye behold them. Myriads swarm around, imperceptible to us: they float in our drink; overspread our food and fruits; and, if continually viewed with a microscopic eye, would make us loath the choicest viands, abjure the nectareous cup, and nauseate the most delicious productions of nature. Even those insects which we call Acari, have likewise their Acari, endued with life and motion, and capable of enjoyments suited to their respective spheres of action.

ACBAB. A bird of the Philippine islands, generally found in a wild state, and very much re-

sembling our common hen. It feeds on rice and other vegetables; but, being short-winded, and incapable of taking long flights, is easily caught. It is reckoned wholesome food, and is therefore often destroyed.

ACCIPENSER. In the Linnæan system, a genus of fish, of the order of nantes, and class of amphibia. The distinguishing characteristics of this genus are, that the mouth is retractile, and destitute of teeth; and the gills have only one hole or aperture on each side.

Of this genus there are only three species: the sturgeon, the Accipenser ruthenus, and the huso or iinglask-fish.

A variety of disputes have originated among naturalists, whether the sturio or sturgeon be the same fish with the Accipenser; and what constituted the difference between the Accipenser and the silurus of the ancients: but the result of the whole appears to be no more than this, that the Romans gave the name of Accipenser to the sturgeon which was caught in their own seas, and used fresh; and called that silurus which was imported in pickle from the coasts of Greece.

ACCIPITER. The name of a whole order of birds, the general characteristic of which is their having a hooked or aduncated beak. Of this order there are four genera; the vultur, falco, strix, and lanius; and seventy-eight different species. See VULTURE, OWL, FALCON, and HAWK.

ACCIPITER. A name given by Gellius and other ancient writers to the fish usually called milvus and lucerna. Artedi distinguishes it by the name of trigla with the head a little acculcated, and a singular fin placed near those of the pectoral.

ACEPHALOUS. A term given to such animals as are either destitute, or supposed to be destitute, of heads. Thus the lumbricus latus, or joint-worm, was long imagined to be Acephalous; but Tulpius, and after him Fehr, discovered that it did not possess this uncommon property; the former, indeed, making it biceps, or two-headed. The ancient naturalists, at the head of whom is Pliny, amused themselves with notions of Acephalous men and women, as well as Acephalous animals; but whether they applied the term by way of sarcasm, or really thought such people existed, remains unknown. Certain it is, that though by some aberration of nature there may have been Acephalous individuals, there never was, nor could be, a whole nation which possessed this singularity.

ACERINA. A name given by Pliny, and the old naturalists, to the fish called in modern times ceruna, and aurata fluviatilis; in English, the ruffe. This is unquestionably a genuine species of perch, and is distinguished from other fish of that genus by having the dorsal fin single and the head cavernous.

ACHAC. A Philippine bird, about the size of a common hen. The belly, breast, and neck, are of a pale brown, and the back is of a dusky reddish hue: the wings are principally composed of blueish green feathers of extraordinary beauty; the tail is white, short, and continually in motion; the eyes are black; the beak is of a thick, strong, obtuse figure, tinged with black; the legs are reddish, and the claws are black. This bird, which is properly of the partridge kind, lives chiefly about the cultivated parts of the Philippine islands, feeding on rice and other vegetables; and, when disturbed, seems to repeat the word 'Phi! Phi!' without intermission.

ACHALALACTLI. A beautiful American bird, remarkable for an annulus or ring of silvery whiteness round its neck. It is nearly the size of a pigeon; the beak is sharp, and about three fingers breadth long; the head is ornamented with a long crest of a blueish black hue; the belly, and the under-side of the wings, are white; the back, and the exterior part of the wings, like the crest, are of a blueish black, variegated with white spots; and the tail is partly black, and partly blue. This bird is commonly seen near the lakes and rivers of Mexico, where it feeds on small fish, which give it a disagreeable flavour.

ACHETA. A name given by the ancient naturalists to the large species of cicada; the nymphs of which they used to eat, and esteemed them delicious food.

ACHIÆNUS. A term by which the ancients denoted a deer or stag in the second year of its age. In the first, they gave it the name of nebrus; in the third, it received the appellation of dicrotus; and that of cerastes was continued ever after.

ACICULÆ. A term used by naturalists to express those small spikes, or prickles, in the shape of needles, with which nature has armed several quadrupeds, as well as crustaceous and testaceous animals.

ACITLI. The common Mexican name for the great-crested diver, a bird common to Europe and America, and more usually denominated by naturalists the lepus-aqueus, or water-hare.

ACO. A name given to a Mediterranean fish; called also aquo, sarachus, and sarachinus.

ACOLIN. A bird of the partridge-kind common in Cuba and Hispaniola. It is about the size of a starling; its legs and feet are of a pale greenish colour; its toes are very long; its breast and belly are white; its beak is yellow, and longish; its head is small; its sides are spotted with brown; and its back and tail are of a dusky yellowish brown. The tail is very short; and both that and the back have some black spots, with narrow bars of white. This bird frequents the margins of lakes, where it is supposed to feed on flies, worms, and other insects usually produced in a watery soil. It is killed for its flesh, and is esteemed very agreeable food.

ACONTIAS. A species of serpent, called also jaculum, or the dart-snake, from the manner in which it vibrates its body. Its motion is the swiftest of any known reptile, and is performed by coiling itself upon its tail, and darting to its full extent; then, carrying its tail, as quick as lightning, to the head, coiling and darting again. In this manner it proceeds with extreme rapidity, without ever quitting the ground. It has been generally believed that this serpent possesses the faculty of flying; and, indeed, it is frequently known to dart down from trees on its prey: but, if we consider the length and weakness of this animal, and the peculiar conformation of the vertebræ, in which all the junctures are formed to give motion, and none to give power, we cannot conceive by what means it can attain the faculty of springing from the ground. It is found in Egypt, Lybia, and the Mediterranean islands. Its length is about three feet; its colour is a milky grey on the back, variegated with small black spots, appearing like so many eyes; and its belly is perfectly white. The neck is wholly black, and from that two milk-white streams run all along the back to the tail; and the black spots are each surrounded with a circle of white.

ACORN. A genus of shells, called lepas and balani by Linnæus, of which naturalists enumerate only a few species, or families. The Acorn-shell is multivalvular, unequal, and fixed by a stem, or sessil; the valves lie parallel to each other, and in a perpendicular position, contrary to that of all other valves, which lie horizontally. The inclosed animal performs its necessary functions by an aperture at the top; for the valves, being destitute of hinges, never open or separate. It affixes itself to other bodies by the bottom, and is never found detached from some solid body, such as larger shells and stones.

The British coasts furnish six different species of Acorns, which the ingenious Mr. Pennant distinguishes by the names of the common, fulcated, Cornish, striated, bell, and anatiforous Acorns; so called from the variations in their colour and conformation.

The tentacula from this animal being feathered, our credulous ancestors, both naturalists and historians, conceived the idea that it gave origin to a bird called the barnacle-geese. So long did this opinion prevail, that we find, in the Philosophical Transactions of this country, a grave account of its transformation into a bird; which gave the late Dr. Hill an opportunity, in his dispute with the Royal Society, of exposing the credulity of that respectable body, and their too great love of the marvellous. As it may be amusing to inspect the philosophy of our progenitors, we shall transcribe the following ridiculous account from Gerard.

“What our eyes have seen, and hands touched, we shall declare. There is a small island in Lancashire, called the Pile of Foulders, wherein are found the broken pieces of old and bruised ships, some whereof have been cast thither by shipwreck; and also the trunks and bodies, with the branches, of old and rotten trees, cast up there likewise; whereon is found a certain spume, or froth, that in time breedeth unto certain shells, in shape like those of the muscle, but sharper pointed, and of a whitish colour; wherein is contained a thing in form like a lace of silk, finely woven, as it were, together, of a whitish colour; one end whereof is fastened unto the inside of the shell, even as the fish of oysters and muscles are; the other end is made fast unto the belly of a rude mass, or lump, which in time cometh to the shape and form of a bird. When it is perfectly formed, the shell gapeth open, and the first thing that appeareth is the lace or string; next come the legs of the bird hanging out; and, as it groweth greater, it openeth the shell by degrees, till at length it is all come forth, and hangeth only by the bill: in short space after it cometh to full maturity, and falleth into the sea, where it gathereth feathers, and groweth to a fowl bigger than a mallard, and lesser than a goose; having black legs, and bill or beak, and feathers black and white, spotted in such manner as is our magpye, called in some places a pie-annet, which the people of Lancashire call by no other name than a tree-geese; which place aforesaid, and all those parts adjoining, do so much abound therewith, that one of the best is bought for three-pence. For the truth hereof, if any doubt, may it please them to repair unto me, and I shall satisfy them by the testimony of good witnesses.”

ACTINIA. A genus of sea-animals of the order of the gymnarthria, naturally of a cylindric shape, but of a variable figure: the tentacula are very numerous, and arranged in several series round the

the mouth, which is placed at one extremity of the body, and is furnished with crooked teeth. The tentacula are in a continual vibratory motion, and by that means draw small animals into it's mouth for food. The animal is equally thick in all it's parts, and about half an inch in length; the tail is trifurcated, or terminating in three points; the colour is a pale flesh, except the tentacula, which have a beautiful variety of hues, and form, when open, a radiated angular circumference, like a beautiful flower with a smooth polygonal disc. It lodges in little cavities of rocks, and of the larger sea-plants of the stony kind; and is found on the coasts of the American islands, of various species, differing from each other in shape, size, and colour. In the Linnæan system, this animal is made a genus of the mollusca order of worms, including five species: the stalky, fulcated, studded, button, and cinque-foil; all which are found on the coasts of the British isles. See ANEMONIES.

ACUS. A long slender sea-fish, of which there are two species, a larger and a smaller, common in the Mediterranean. It is called by the Venetian fishermen *biscia*; that is, the viper-fish. The larger species is often a cubit long, and about the thickness of a finger; the snout is long, tubular, and only open at the end; the mouth is of a strange figure, opening upwards at the extremity of the snout; and the eyes are prominent. From the head to the anus it is of an hexagonal figure, and from the anus to the tail it is square: the anus is placed nearly in the centre of the body, near which is a large longitudinal fissure for the eggs of the female. In all these respects, it bears a strong affinity to the hippocampus. It has two fins at the gills, and another on the back; each of which is extremely small, and, the last in particular, is scarce discernible, unless when the fish is in actual motion. The tail is a small single fin; the skin is hard and variegated; and the quantity of flesh is so small, that the fish is not regarded as worth eating.

ACUS is likewise used by some authors to signify the belone, or paphix; in English, the gar-fish; and, by some, the horn-fish. The two distinct kinds understood by this indefinite term are distinguished by the names of the authors who first noticed them; the tobacco-pipe fish, or that with the tubular nose, being called the Acus of Aristotle; and the gar-fish, or that with the horizontal open mouth, the Acus of Oppian. This last is not very different in shape from the former; being long and slender, with a round back, a flat belly, a very long nose or snout sharp and pointed, and a flat head. The back is of a greenish colour, and the sides and belly are of a silvery white; the head is of a blueish green, and an obscurely dotted purple line runs along the back; the under-jaw is longer than the upper, and both are thick set with sharp teeth. It has only one back fin, and a forked tail.

Bellonius describes another species of this fish, considerably larger than the common one, scaly, and furnished with broader teeth; whereas the common one has either no scales, or they are extremely minute. The dotted dorsal line, however, has been affirmed by some to be a single row of scales, and these persons contend that the fish has no other.

ADDER. A venomous reptile of the serpent kind, sometimes confounded with the asp, but more usually known by the name of the viper. See VIPER.

The distinguishing characteristics between the adder and the snake are, that the former is much

shorter in proportion to it's bigness, especially below the vent; that it is marked on the back with black lines or spots, which the snake wants; that it's belly is blackish, and of one colour, whereas the snake is party-coloured, of a pale yellow and blue; that it never attains to the size of a snake; and, lastly, that it is viviparous, whereas the snake is oviparous.

ADDER, SEA. The English name of a species of syngnathus, with a round body, destitute of tail or pectoral fins.

ADDER, WATER. A name sometimes applied to the matrix. See NATRIX.

ADEL. A name given by some nations to the lavaretus, or albula nobilis. These, indeed, are usually treated of by naturalists as two different kinds of fish; but Artedi contends that they are the same species, and distinguishes them by the name of the coregonus with the upper jaw flat; and longer than the under; and with fourteen rays in the back fin.

ADMIRABLE. A species of butterfly generally frequenting the great stinging nettle, on which the female commonly lays her eggs; in doing which she flies from one nettle to another, depositing her eggs singly, one on a leaf, and at such distances from each other, that sometimes her store of eggs will be extended over several fields. Nature probably directs her to this method, as a more certain security for the preservation of the species; and so attentive is she to the safety of her young brood, that she often secretes herself among the nettles; in order to examine if they are frequented by ants, or other creatures destructive to caterpillars, before she ventures to deposit a single egg.

No sooner is the egg hatched, than the young caterpillar, being of a very tender nature, begins to seek a place of security; and to keep itself from the injuries of the weather, as well as the ichneumon, of which it seems to live in constant apprehension. It encloses itself in a leaf of the nettle, by drawing it's edges together with the fine silken threads it contains; and, being lodged in security, feeds on that part of the leaf which is next the stalk, till having consumed the greatest part of the leaf, it shifts it's skin, and forsakes it's ruined habitation, to go in search of a place proper for a new one. In this manner the caterpillar proceeds, till one leaf is no longer able to contain it, when it creeps up towards the top of the nettle, and spins itself up within the leaves, after eating the stalk almost through. Sometimes, indeed, it may be found drawing the tops of two contiguous nettles together; and it often happening that some one nettle which may be wanted to compose the habitation, is at too great a distance, on such occasions the caterpillar instinctively consumes the stalk on the farther side, that it may more readily incline to it's purpose.

To find this caterpillar, it is only necessary to examine such nettles as have their tops bending with their leaves, and withered. This is done by the caterpillar of the Admirable; and, among the dead leaves, it's spinning, and probably the chrysalis, may be found, as it seldom begins to work till ready for it's transformation, which happens generally about the beginning of August.

The caterpillars assume various colours: some appearing of a light yellow, or amber colour; and others almost black. The younger caterpillars, however, are black, freckled with small yellow spots. When properly fed, the caterpillar generally affixes itself to it's spinning by means of it's tail, and changes to the chrysalis, though sometimes it may

may be found hanging openly under a leaf, or any other convenient shelter. Why it changes in this naked and exposed state, contrary to it's usual practice of concealing itself, is not easily accounted for; but the most probable reason is, that the earwigs, which get into it's inclosures in great numbers, oblige it to retire; and, being near the time of it's transformation, it is too feeble to make a fresh coverture, and consequently remains in an exposed state.

The chrysalis is of a beautiful pearl colour, covered with a fine bloom representing that on the plum. But the chrysalides which bear this appearance, are only such as are found in the fields; for those produced from caterpillars fed in houses, are of a dirty brown, though sometimes embellished with small golden spots. The chrysalis state takes up a period of twenty-one days, and then appears the Admirable Fly; so denominated from it's beautiful variety of colours. The female is larger than the male, and may be known by an additional white spot situated in the red part of the superior wings. It frequents solitary lanes, and places over-run with brambles, on the blossoms of which it continually settles. It is extremely quick-sighted, timid, and swift of wing; and, when pursued, generally takes shelter in some lofty tree, where it remains till it conceives the danger is past.

ADMIRABLE, WHITE. This beautiful insect has very seldom been discovered in a caterpillar state in this kingdom, though the fly may be caught in the woods, in the latter end of June and the beginning of July. It flies with great rapidity, often skimming like a swallow, and seems to have a peculiar predilection for the leaves of the oak. Sometimes it settles on the ground, in shady paths of the woods: it is, however, extremely timorous; and, when aware of it's pursuer, darts over the tops of the highest trees with inconceivable velocity, or settles on the loftiest branches, from which it is not easily dislodged.

Though, as we have just observed, this insect is not often found in a caterpillar state in England, it appears from the accounts of German naturalists, that it lays it's eggs on the very tops of the highest poplars, where the young are hatched, and remain during the winter in the caterpillar state, securing themselves by their webs; that in the spring they feed again, when awakened by the genial heat of the sun from their dormant state; and, becoming full fed in the beginning of June, change to the chrysalis; when, towards the end of June, the White Admirable, so much esteemed by aurelians, is produced.

ADMIRAL. A very beautiful and precious shell of the voluta kind, of which the curious enumerate four species: the Grand Admiral, the Vice Admiral, the Orange or Rear Admiral, and the Extra Admiral.

The first of these is held in such high estimation, that a single shell has been sold in Holland for five hundred florins. It's colour is a very elegant and shining white enamel, variegated with yellow bands, representing, in some measure, the colours of the flag of a man of war at sea, from which fancied resemblance it obtained it's name. The shape is peculiarly curious, and the elegance about the head is almost inconceivable, the clavicle being exerted. Along the centre of the large yellow band in this shell, runs a beautiful denticulated line, which is it's distinguishing characteristic.

The Vice Admiral is likewise a very valuable shell; but the conformation of the head is less ele-

gant than that of the Grand Admiral; and it's broad band wants the denticulated line which distinguishes the latter.

The Orange Admiral contains more yellow stripes than the others; from which peculiarity it derives it's name.

The Extra Admiral has the same form and bands as the former; but these bands, running into one another, form a mixed nebulous appearance, which considerably varies in different shells.

ADONIS. A small fish of the anguilliform kind, about six inches long, of a cylindric shape; and a golden colour intermixed with a greenish hue, and sometimes a reddish one. A white straight line runs on each side from the gills to the tail; the gills are remarkably small, which has induced some superficial observers to conclude that it was destitute of any; however, from a minute examination, the contrary appears to be the fact. It is remarkable for sleeping on the surface of the waters, and near the shores; and Rondeletius affirms, that he has even seen it reposing on the dry rocks.

This fish is also called *exocætus*; and Ray suspects it to be the same with the *exocætus* of Belonius, or the *gottorugine*.

ADOSCULATION. A term used by natural historians to express a species of copulation or impregnation by mere external contact between the genitals of the two sexes without intromission. Several kinds of birds, fishes, and particularly shell-fish, are impregnated by this method of generation.

ÆGLEFINUS. A name given by the generality of authors to the haddock, a well known fish, of a middle nature between the cod and the whiting; called by others the *onos*, or *afinus antiquorum*. See **HADDOCK**.

ÆGOCEPHALUS. The classical name of the bird known in England by the appellation of the godwit or stone-plover.

ÆHOITULLA. An East Indian serpent, frequently found in the Island of Ceylon, of a very long and slender form, sometimes wholly green, and sometimes variegated green and white. It lives principally among trees and bushes, and does not appear to be of a very venomous nature.

ÆLQUAPPE. A fish of the mustela kind, the viviparous eelpout, called by some *mustela vivipara*, *aelpute*, *aelmoder*, and *aelmutter*. It grows to about a foot in length; the skin is perfectly smooth; the head and back are of a brownish yellow, marked with blotches of black; the colour of the back becomes paler as it approaches towards the belly, and on the belly is quite whitish. The head is shaped like an eel, and there are four gills on each side; the back-fin reaches the whole length of the body, terminating near the tail; and the belly-fin rises at the anus, and reaches to the extremity of the fish, ending in a fine, slender, and somewhat reddish tail. Besides these, it has two pair of fins: one at the bottom of the gills, which are rather broad; the other under the throat, which are very fine and slender. The young of this species are often found alive in one fish to the number of three hundred: these are sometimes upwards of an inch in length, and will live after they are separated from the parent stock.

ÆRICA. The classical name given by Gaza and others to the common herring.

ÆSALON. A species of hawk of the long-winged race, called in English the merlin. It is the smallest of the hawk-kind, used in the diversion of

of hawking; being only about the size of a black-bird. The beak is blue; the eyes are of a hazel colour; a wreath of whitish yellow feathers appears behind it's head; the throat is white; and the back and wings are of a dusky blackish brown. The larger wing-feathers are black, and marked with brown spots; the tail is long, and variegated with transverse streaks of black and whitish brown; the breast and belly are of a whitish brown, variegated with blackish brown spots; and the legs are long and yellow. It preys on partridges, and every other bird over which it's strength gives it an ascendancy.

ÆSCH. A name sometimes given to the grayling or tumbler, a fish of the truttaceous kind, called in Latin thymallus.

ÆSCHNA. A species of water-fly, of an ashy-colour, with four wings, and a long body hairy near the tail.

ÆSCULAPII ANGUIS, or SNAKE OF ÆSCULAPIUS. A harmless species of serpent, common in Spain, Italy, and other warm countries. In Italy it is suffered to enter the houses, and frequently ascends the bed where people repose. This animal is of an oblong shape, and about an ell in length. It is of a yellowish colour, except on the back, where it is of a brownish hue. Both jaws are armed with a number of very sharp teeth; and on the neck appear two small eminences, with an empty space between them.

ÆTHIA. An ancient name given to one of the web-footed species of fowls which the moderns suppose to be the utamania of Crete, or the common auk or razor-bill.

AFDELLES. A Cretan name for the fish called at Rome donzellina and zigurella. It appears to be the julis of antiquity; and, according to the Artedian zoology, is a species of the labrus. Artedi distinguishes it from the others by the name of the palmar labrus with variegated sides and two large teeth in the superior jaw.

AGNOS. A name given by Athenæus, and many other Greek writers, to the fish called callionymus, or uranoscopus. It is a species of the trachinus; and is distinguished by Artedi from the rest of that genus, by the name of the trachinus with a great number of beards growing from the lower-jaw.

AGONUS. A name used by the generality of authors to express the fish called by some farachus, and by others either chaleis or fardella. This fish in many respects resembles the alaufa or shad, called the mother of herrings, but is considerably smaller, never arriving at more than a foot in length; and is always ill-conditioned in spring, but fat and plump in autumn. The distinctions, however, between it and the alaufa, if real, are so very trifling, that the penetrating Ray, and many of the most accurate naturalists, suspect it to be the same fish in a different state.

AGOUTI. This animal seems to be a middle species between the hare and the marmot, and bears some rude resemblance to the hare and the rabbit in it's form and manner of living, though sufficiently different from both to require a particular description. It is found in great abundance throughout South America, and has been by some denominated the rabbit of that continent; but though, in many respects, it bears a strong affinity to the rabbit, it varies from it very essentially, and is most unquestionably an animal peculiar to the new world. The Agouti is about the size of a rab-

bit, and has a head very much like that animal, except that the ears are considerably shorter. It also resembles the rabbit in the arched form of it's back; in the hind-legs, which are longer than the fore; and in having four great cutting teeth, two above, and two below. The Agouti likewise differs from the rabbit in the nature of it's hair, which is not so soft and downy as the hair of that animal, but hard and bristly, like that of a young pig, and of a reddish brown hue. It farther differs from the rabbit in the tail, which is shorter, and entirely destitute of hair. And, lastly, it differs from that animal in the number of it's toes; having but three on the hind-feet, whereas the rabbit has five. All these distinctions, however, do not materially interfere with it's general conformation, which resembles that of the rabbit; and hence most travellers have called it by that name.

But the Agouti varies more essentially from the rabbit in it's habitude and disposition, than in it's form. As it has the external covering of a hog, so also it has it's voracious appetite. It eats indiscriminately of, as well as takes pleasure in gnawing and defacing, every thing which comes in it's way; and, when satiated, conceals the remainder, like the dog and fox, for some future occasion. When irritated, the hair of it's back stands erect; and, like the rabbit, it strikes the ground very violently with it's hind-feet. It does not dig a hole in the ground, but burrows in the holes of trees; and it's ordinary food consists of the roots peculiar to it's native country, such as potatoes and yams, with those fruits which in Autumn fall from the trees. It uses it's fore-paws, like the squirrel, to convey it's food to it's mouth: and, as it's hind-feet are longest, it runs very swiftly on plain ground, or uphill; but, on a descent, it is in danger of falling. It's sight is excellent, and it's hearing inferior to that of no other animal; and, whenever it is whistled to, it stops to hearken. The flesh, when fat and well fed, is tolerable food, though it has a peculiar taste, and is a little tough. Buffon informs us, that the French dress it in the same way as they do a sucking-pig; but the English serve it up with a pudding in it's belly, like a hare.

Whenever the Agouti is entangled in a sugar-ground where the canes stand thick, it is easily overtaken by the dogs; for as it is embarrassed by every step it takes, a man may easily catch it without any other assistance. When in the open country, it runs with amazing speed before the dogs, till it gains it's retreat, within which it continues to hide itself till it is dislodged, and this is usually performed with extreme difficulty. Indeed, nothing but filling the hole with smoke can force it out of it's shelter; for which purpose the hunter burns faggots, or straw, at the entrance, and conducts the smoke into it in such a manner as to fill the whole aperture. While this is performing, the poor animal seems sensible of it's danger; and, by the most plaintive cries, expresses it's terror: however, it seldom quits it's hole till the last extremity. At length, half suffocated, it issues out, and trusts once more to it's speed for protection; but when still pursued by the dogs, and incapable of making good it's retreat, it turns on the hunters; and, with it's hair bristling like a hog, and standing on it's hind-feet, it defends itself to the last extremity with an obstinacy scarcely to be expected from such a feeble animal. Sometimes it will bite those who attempt to catch it, and wherever it fixes it's teeth it is sure to take out the piece.

The cry of the Agouti, when disturbed or provoked, resembles that of a sucking-pig. If taken young, it is easily tamed, continues very tractable, and seldom reverts to its original wildness. In its savage state, it usually inhabits the woods, the most unfrequented parts of which are chosen by the female for the purpose of bringing forth her young; where she prepares a bed of leaves and dry grass, and generally produces two at a time. She breeds twice or thrice a year, carrying her young from one place to another, after the manner of the feline tribe. When they are three days old, she commonly lodges them in the hollow of a tree: where she suckles them but a short time, as they are soon capable of providing for themselves; from which we may naturally conclude that the Agouti is not very long-lived.

AGRIÆ. An order of quadrupeds destitute of teeth, but furnished with very long cylindric tongues which supply that defect. Of this order there are only two distinct genera; the myrmecophaga, and the manis.

AGUAPECACA. The name of a Brazilian bird of the moor-hen kind. It grows to the size of a pigeon, is very long-legged, and furnished with a beak like that of the gallinaceous tribe. Its back, and the superior parts of its wings, are brown; and the neck, breast, and belly, are of an iron-grey. In the extremity of each wing it has a sharp horn, or prickle, with which it defends itself from the injuries of its feathered companions.

AHANIGER. A name given by some authors to the fish called by naturalists *acus vulgaris*, and by others the gar-fish. The conformation of this fish, which is very long and slender, has caused it to be confounded with the syngnathus, or tobacco-pipe fish; but, when accurately examined, it appears very different, that being a true species of the syngnathus, and this of the elox or pike. See GAR-FISH.

AHICCYATIL. An American serpent, approaching to the nature of the hæmorrhous and rattle-snake; but exceeding the former in magnitude, and being destitute of the rattle of the latter. Its poison, however, is as subtle as that of any species of the serpent race; though capable of being expelled by the usual antidotes.

AIAIA. A Brazilian bird of the platea, or spoonbill kind, called by the Portuguese *colhorado*. In the shape of its body, and the formation of its bill, it exactly resembles the European spoonbill. It is of a pale, but very bright and glossy flesh-colour, on the back and wings; while the other parts of the body are of a beautifully white. It is commonly seen near the Brazilian rivers; and is killed for the sake of its flesh, which is very palatable.

AICUROS. A Brazilian parrot, of superior magnitude to the generality of the species, and one of the most docile of that beautiful tribe. The head of this bird is variegated with yellow, red, and violet colours; the body is green; the tips of the wings are red; and the tail-feathers are long and yellow. This bird is too delicate to exist under a less favourable sky than that of its nativity, and is therefore seldom imported into Europe; though its amazing beauty and sagacity would render it a valuable addition to the finest aviary. Clusius furnishes us with an instance of its prodigious understanding in the following narration.

‘A certain Brazilian woman,’ says he, ‘who lived in a village two miles distant from that in which we

resided, had a parrot of this kind; which was the wonder of the place. It seemed endued with such understanding, as to discern and comprehend whatever she said to it. As we sometimes used to pass by that woman’s house, she used to call upon us to stop; promising, if we gave her a comb, or a looking-glass, that she would make her parrot sing and dance to entertain us. If we agreed to her request, as soon as she had pronounced some words to the bird, it began not only to leap and skip upon the perch on which it stood, but also to talk and to whistle, and imitate the shouts and exclamations of the Brazilians when they prepare for battle. In short, when the woman was pleased to make it sing, it sung; to dance, it danced. But if, contrary to our promise, we refused to give the woman the little present agreed on, the parrot seemed to sympathize in her resentment, and was silent and immovable; neither could we, by any means, provoke it to move either foot or tongue.’

AIGRETTA. A name used by some naturalists to express a distinct species of heron, but which seems to be no other than a synonym of the *garrivane*, or *ardea alba minor*, the small white heron.

AIPIMIXIRA. An American fish, more generally known by the name of *pudiano*. This fish, which is very small, and shaped like the perch, has a purple back, with a yellow belly and sides.

AJURU CATINGA. A Brazilian parrot of the size of a common pullet, entirely covered with plumage of the most vivid green. Its eyes are of a fiery red, and the skinny circle around them is white; of which colour likewise are its beak and legs.

AJURU CURAU. A Brazilian species of parrot, of the size and shape of the common green parrot. Of this species there are two kinds. The first species, which is extremely beautiful, has a blue crown; the throat and sides of the head are of a fine yellow; the rest of the body is of a lively green; the long-winged plumes are partly black, and partly yellow, having their tips variegated with blue and green; and the tail is edged with red, black, and blue. The other species has the same colours, but differently disposed. Its head is yellow, with a whitish cast; the throat, and sides of the head about the eyes, are of a vivid yellow; and near the head there is a sea-green spot.

Exclusive of the above, there is also another species, which possesses all the colours of the first, but with an admixture of black about the head, a yellow spot on the crown, another of the same colour below the eyes, and a blue one under the throat.

AJURU PARA. A Brazilian species of parrot of a small size. Its whole plumage is of a most beautiful green colour; and its legs, beak, and circlets of the eyes, are of the purest white.

ALAUDA. A genus of the order of passeris, and class of aves, in the Linnæan system. See LARK.

ALBARDEOLA. A name given by many authors to the platea or spoonbill.

ALBATROSS. One of the largest and most formidable birds of Africa and America, abounding particularly about the Cape of Good Hope, Cape Horn, and some other places. Edwards, the ingenious ornithologist, thus describes the figure of the Albatross. The body is rather larger than that of a pelican; and its wings when extended, are ten feet from tip to tip. The bill, which is six inches long, is yellowish, and terminates in a crooked point. The top of the head is of a bright brown; the back is of a dirty deep spotted brown; the belly

belly is white; and the toes, which are webbed, are of a flesh-colour.

Such are the leading traits in the figure of this famous bird: but these alone give us a very imperfect insight into its history and qualities; we shall therefore investigate its particular habits, which render it a subject of some importance to the science.

The Albatross is one of the most fierce and formidable of the aquatic tribe; not only preying on fish, but likewise on such small water-fowl as as it can take by surprise. It preys, after the manner of all the gull tribe, on the wing; and chiefly pursues the flying-fish, when driven from the ocean by the dolphin. In our northern seas, one dreary expanse, ruffled by winds, and seemingly abandoned by every class of animated nature, presents itself; but in the tropical seas, and the distant southern latitudes, the scene is filled with birds and fishes pursuing and pursued. Every different species of the gull-kind is there seen hovering on the wing, and at an immense distance from shore. The flying-fish is continually rising to elude its enemies in the deep; but, in escaping one danger, it generally falls into another equally fatal. Just as it rises, the dolphin is seen to dart after it, though generally in vain; but the gull has more frequent success, and often catches it at its rise; while the Albatross, pursuing the gull, compels it to relinquish its prey. Thus the whole horizon presents one general scene of rapacity and cunning, of stratagem and evasion.

‘As the Albatross,’ says Wicquefort, ‘except when it breeds, lives entirely remote from land, so it is often seen, as it should seem, reposing in the air. At night when it is pressed by slumber, it rises into the clouds, as high as it can; where, putting its head under one wing, and beating the air with the other, it seems to enjoy its ease. After some time, however, the weight of its body, only thus half supported, brings it down; and it is then seen descending, with a pretty accelerated motion, towards the surface of the deep: on this it again exerts itself to rise; and thus, alternately, ascends and descends at its ease. But, during these uncommon slumbering flights, it frequently loses its equilibrium; and, falling on the deck of some ship, becomes an easy prey to the mariners.’

How far this account may correspond with simple truth, is difficult to determine; but certain it is, that few birds float on the air with more facility than the Albatross, or are capable of supporting themselves a longer time in that element. It seems unconscious of the excesses of fatigue; keeps hovering night and day on the wing, and always appears as if emaciated with hunger.

But though this bird may justly be deemed one of the most dreaded tyrants of the deep, it does not indiscriminately prey on every animal, and entirely relinquish any association with other creatures. Between the penguin and the Albatross there seems to be a peculiar affection: they are always seen to choose the same breeding places; which are generally distant unfrequented islands, in which the ground slopes downward to the sea, the penguin being neither formed for flying nor climbing. In such situations, their nests are contiguous, as if they stood in need of mutual assistance and protection. The union preserved between these birds, and the regularity with which they build their nests, are indeed astonishing. On the Falkland islands, those bleak and desolate spots,

where these birds had long continued undisturbed, and in no respect dreaded the encroachments of men, they seemed to make their habitations as convenient as if they expected them to be permanent: they built them with an amazing degree of uniformity, and their society resembled a regular plantation. In the middle, the Albatross raised its nest, on heath-sticks and long-grass, about two feet from the surface of the ground; and round this the penguins constructed their inferior abodes, by making holes in the earth, the general proportion they observed being that of eight penguins round one Albatross. But as these islands are now more frequented than formerly, the penguin and the Albatross have forsaken them, and sought some more obscure retreat: a striking confirmation of Buffon’s judicious remark, that the presence of man not only destroys the society of meaner animals, but likewise serves to extinguish their instincts.

ALBELEN. A fish of the truttaceous kind, called also albula, strongly resembling the ferra. It is caught in the German and other lakes, and commonly weighs from five to six pounds, though sometimes it has been found to weigh twelve. The colour of the Albelen is a fine silvery white, with some very pale striæ.

ALBORO. A name by which the erythrinus, a small red fish caught in the Mediterranean, is commonly known in the Italian markets.

ALBULA. A genus of fishes of the truttaceous kind, distinguished by their being destitute of teeth.

ALBULA INDICA. A small fish resembling a herring, caught on the oriental shores, and called by the Dutch the wit-fish.

ALBULA NOBILIS. The classical name of one of the truttaceous species of fish caught in the German lakes, and in those of various other countries.

ALBURNUS. A fresh-water fish, commonly known in England by the name of the bleak. It is frequently caught in the British rivers, as well as in those of some other European countries, and is esteemed agreeable food. It is a species of the cyprinus of Linnæus; and is in the greatest perfection during the month of September. See **BLEAK**.

ALBURNUS LACUSTRIS. A name erroneously given by some naturalists to the ballerus of the ancients, or the pallerus and pleysta of the moderns.

ALBUS PISCIS. The white-fish; a name by which Salvian has called the capito lacustus; and which seems to be the same with the blue-chub; or, as it is more frequently called, the gontling. See **GONTLING**.

ALCEDO. A genus of birds belonging to the order of picæ, and comprehending fifteen species. Their distinguishing characteristics are, that the beak is triangular, thick, straight, and long; the tongue is short, fleshy, smooth, and acute; and the feet are peculiarly formed for walking.

ALCEDO VOCALIS. A name by which Bellonius, Aldrovandus, and some other authors, have called the red sparrow.

ALEC. A name applied by Gaza, in his commentaries on Aristotle, to the fish called by that author mainis, and by Ovid monerela. It seems to be of the sparus kind.

ALIARBUCHA. The Arabian name for a large species of rat common in that country; and which is reckoned pretty salubrious food, according

ing to Bochart, who conjectures it to be the same as the schaphanmen tioned in Leviticus xi. 5. and there pronounced unclean.

ALKA. See **AVK.**

ALKUSSA. A Swedish name for a fish called also by the same people lake. It is a species of the filurus: and Artedi distinguishes it by the name of the filurus with only one cirrus or beard under the chin; whereas the common filurus, which is the glanus of the ancients, has four beards.

ALLELOPHAGI. A term used by some naturalists to express a peculiar genus of flies which feed on one another. They are thus called, to distinguish them from another class stiled the heterophagi, from their feeding on different substances, and not on each other.

ALLIGATOR. A very formidable and ferocious animal, generally confounded with the crocodile; with which, indeed, it agrees in every essential property. This animal, which is placed at a happy distance from the more populous regions of Europe is only formidable in those countries where there are but few inhabitants. In the more cultivated parts of the earth, the large and ferocious tribes of animals are seldom seen; where their appearance would rouse a whole country at once to oppose their force, probably at the expence of many lives. Hence the crocodile, which was once so terrible along the banks of the Nile, is now far less common than in ancient times. The arts of mankind, which were naturally first applied for the means of preservation, have in a great measure triumphed over this formidable enemy; and though it sometimes makes its appearance in Egypt, it is comparatively feeble, and divested of its ferocity. To see this animal in all its native terrors, grown to a surprizing magnitude, propagated in numbers, and committing acts of perpetual devastation; it is necessary to search the uninhabited regions of Africa and America, to trace those prodigious rivers which devolve their streams through desolate and extensive realms, where the arts of civilization have never penetrated, where force alone constitutes distinction, and the savages of nature exert their strength with confidence, because with security. A considerable way up the River of the Amazons, the Niger, or the Nile, these animals are numerous and terrible, being frequently from eighteen to twenty-five feet in length, and sometimes lying as close together as a raft of timber on the Thames; where they indolently bask on the surface, regardless of the approach of enemies; since, from repeated trials of their power, they have found none whom they were unable to conquer.

We have before hinted, that the crocodile, properly so called, and the cayman or Alligator, are nearly the same. Travellers, indeed, rather than nature, have made a distinction between them; for, in their general appearance, nature, and conformation, they are entirely the same. The usual distinctions, however, between the crocodile and Alligator, are the following. The body of the crocodile is more slender than that of the Alligator; its snout running off tapering from the forehead, like that of a greyhound, while the Alligator's is indented like the nose of a lap-dog. The crocodile has a much wider swallow, and is ash-coloured; the Alligator is black, varied with white, and generally deemed less mischievous. These distinctions, however, are very slight, and can only be regarded as minute variations, which the dif-

ference of soil and climate may effect in the same species. The common length of the Alligator is about eighteen or twenty feet; however, some have been found to measure thirty feet from the tip of the snout to the end of the tail. The Jesuits at Siam dissected one of the common dimensions; and, as the description given both of its external appearance, and internal conformation, is probably the most accurate of any to be met with, we shall take the liberty to subjoin it.

This animal, it appears, was eighteen feet and a half, French measure, in length; of which the tail was no less than five feet and a half, and the head and neck about two feet and a half long. The fore-legs had the same parts and form as the arms of a man, both internally and externally. The hands, if they may be so called, had five fingers; the two last of which were destitute of nails, and terminated conically. The hinder-legs, including the thighs and paws, were two feet two inches long. The paws, from the joints to the extremities of the longest claws, were above nine inches long: they were divided into four toes, of which three were armed with large claws, the longest of which was an inch and a half; and these toes were united by membranes like those of web-footed fowls, but of a much stronger substance. The head was long, and had a little rising at the top; but the rest of it was flat, and especially towards the extremity of the jaws; and it was covered by a skin which adhered firmly to the scull and jaws. The scull was rough, and indented in several places; and about the centre of the forehead were two bony crests two inches high. The scull between these two crests was musquet proof; for, on trial, a ball marked it but slightly. The eye was very small in proportion to the rest of the body; and was so placed within its orbit, that the exterior part, when the lid was shut, was only an inch long, and the line ran parallel to the opening of the jaws. It was protected by a double lid, one within and another without: that within resembling the nictitating membrane in birds, was folded in the great corner of the eye, and had a motion towards the tail; but being transparent, it guarded the eye without interrupting the sight. The iris was very large in proportion to the globe of the eye, and of a yellowish grey colour. Above the eye was placed the ear, which opened downwards as if by a kind of spring, by means of a solid, thick, cartilaginous substance. The nose was placed in the middle of the upper-jaw, near an inch from its extremity, and was perfectly round and flat, being near two inches in diameter, of a black, soft, spongy substance, not very dissimilar to the nose of a dog; and the jaws seemed to be locked one within another. Nothing can be farther from the truth, than the generally received opinion, that the lower-jaw is incapable of motion: it moves like the under-jaw in all other animals; while the upper is fixed to the scull, and absolutely immoveable. This animal had twenty-seven cutting teeth in the upper-jaw, and fifteen in the lower, with several interstices between them; they were thick at the root, but sharp towards the point, being all of different sizes, except ten large hooked ones, six of which were in the lower-jaw, and four in the upper. The mouth was fifteen inches long; and, where broadest, eight and a half; the distance between the two jaws, when fully extended, being fifteen inches and a half; a space wide enough to admit the entire body of a man.

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The colour of the body was of a dark brown on the upper part, and of a whitish citron below, with large spots of both these colours on the sides. The shoulders, to the very extremity of the tail, were covered with fifty-two large square scales disposed like parallel girdles; but, towards the tail, the distance between these circles increased. The creature was not only covered with these, but also with a coat of armour; which, however, was not proof against a musquet-ball, as had been generally believed: yet it must be confessed, that the attitude in which the animal was placed might contribute to render it more vulnerable; for, probably, had the ball struck obliquely against the shell, it would have turned off. Those parts of the girdles which were beneath the belly had a whitish hue, and were composed of scales of various shapes, but not so hard as those on the back.

With regard to the internal conformation of the animal, the gullet was large in proportion to the mouth; and a ball of wood as large as a man's head was passed up and down with facility. The guts were comparatively short, not being so long as the creature's body. The tongue, which some naturalists have falsely asserted this animal was not possessed of, consisted of a thick, spongy, soft flesh, strongly connected with the inferior jaw. The heart was about the size of a calf's, and of a bright red colour, the blood passing as well through the veins to the aorta as into the lungs. There was no bladder; but the kidneys were furnished with a duct to the anus, by which the urine was discharged. The back-bone was composed of sixty-two joints; which, though very closely united, had sufficient play to enable the animal to bend like a bow to the right and left; so that what we have been told of escaping the creature's voracious jaws, by declining from the right line, and of the animal's not being able to wheel about readily after its prey, seems to be entirely fabulous. On the contrary, it is probable, that the Alligator can turn with the utmost facility; for the joints of its back are not less pliant than those of other animals, which we know, by experience, can wheel about very nimbly when they please.

Such is the genuine account of the figure and conformation of this dreaded animal, which depopulates countries, and renders the most beautiful rivers dangerous, and even deserted. It has been seen in some places for hours, and even days, basking in the sun, and apparently motionless; so that the unwary traveller might easily mistake it for the trunk of a tree covered with a rough and dry bark: but this mistake would probably be attended with the most fatal consequences, if not timely discovered; for the seemingly torpid animal, on the near approach of any living creature, instantly darts on it with inconceivable swiftness, and precipitates it to the bottom of the river. During inundations, this unwelcome visitant sometimes enters a cottage, and seizes the first animal it sees; nor are instances very unfrequent of its having dragged a man out of a canoe, in the view of his companions, who vainly exerted their endeavours to save him.

The Alligator is prodigiously strong; and its arms, both offensive and defensive, are entirely irresistible. The shortness of its legs; the conformation of the back-bone; the muscles of the fore and hinder legs; and, in short, its whole frame; are calculated for amazing force. Its teeth are sharp, numerous, and formidable; its claws are long,

and tenacious; but its principal instrument of destruction is its tail, with a single blow of which it is capable of overturning a common canoe. Its proper element is the water, and there it is by far the most destructive; nevertheless, it is likewise very terrible by land: it seldom, however, unless when pressed by hunger, or with a view of depositing its eggs, quits its native element. It usually floats along the surface, and seizes whatever animals come within its reach; but, this method failing, it is then compelled to venture near the shore, where it conceals itself among the sedges, in expectation of some land animal, the dog, the bull, the tiger, or even man himself, coming to drink. As the devoted victim approaches, nothing of the insidious destroyer is to be seen; nor is the retreat of the former often meditated till it is too late. The voracious animal instantly springs on its prey, with much more agility than might reasonably be expected from such an unwieldy creature; and, having secured it with its teeth and claws, instantly plunges into the water, and drags it to the bottom, where it is devoured at its leisure. Sometimes, however, the animal which the Alligator has thus surprized and seized, escapes from its grasp in a wounded state: in that case the tyrant pursues it with all its might, and often seizes it a second time; for, though heavy to external appearance, the Alligator runs with amazing celerity. It often ventures half a mile from the bank of the river; and, having regained its prey, returns with it to the river-side, where it feasts in perfect security.

In its depredations along the banks, it sometimes happens that the Alligator seizes on an animal as formidable as itself, and meets with a desperate resistance. The tiger and the Alligator, in particular, have frequent contests. A parching thirst, with which all animals of the tiger kind are continually affected, keeps them in the vicinity of great rivers, whither they very frequently descend to drink. On these occasions they sometimes meet with the Alligator; and, the instant they find themselves assailed, they turn about with prodigious agility, and force their claws into the eyes of the assailant, who immediately plunges with its fierce antagonist into the river, where the struggle continues till the tiger submits to a watery death.

In this manner the Alligator seizes and destroys all animals, and is therefore equally dreaded by all. Man alone, who can unite reason with strength, seems capable of combating this animal with success. Labat assures us, that a negro, with no other weapon than a knife in his right-hand, and a cow's hide wrapped round his left, will boldly venture to attack this animal, even in its own element. Whenever he approaches the Alligator, he presents his left-arm with its contents, which the animal greedily attempts to swallow; but the hide sticking in its throat, the negro takes that opportunity of giving it several stabs under the lower-jaw with his knife; and the water rushing in at its mouth, which is held open involuntarily, the creature is soon swelled to such an enormous size, that its animal functions are entirely suspended.

In Siam, Alligators, or crocodiles, (which terms may be used indiscriminately) are frequently caught by the natives. In that empire, where the largest as well as most formidable animals abound, the inhabitants seem particularly fond of signaling their bravery by destroying them. They are extremely successful in taming the elephant; nor are they

they at all less fortunate in their attacks on the Alligator. In order to catch that animal, they throw three or four strong nets across some river, at proper distances from one another; so that if the Alligator breaks through the first, it may possibly be entangled by one of the next. When it first feels itself entangled in the net, it exerts its tail, the grand instrument of its strength, with its utmost force; but, after many unavailing struggles, its force is at last exhausted. The natives then approach their captive in boats, and continue to pierce it with sharp weapons in the most tender parts, till it becomes enfeebled through loss of blood. When its motion seems wholly to cease, they begin to tie up its mouth with a cord; and to fasten its head to its tail, by bending the body like a bow. However, they do not then consider themselves as perfectly secure from its fury; and, for their greater safety, they tie all its feet to the top of the back. These precautions are essentially necessary; for, were they omitted, the animal would in general soon recover strength enough amply to revenge the injury it had received.

The Alligator, when thus subdued by the taming arts of man, or bred up from its infancy, is often used for the diversion and entertainment of the grandees of the east. It is sometimes managed like a horse; and, a curb being put into its mouth, it is obliged to submit to the pleasure of its rider; and, though awkwardly formed for a beast of burden, it proceeds with a degree of swiftness not much inferior to that of some of our own less unwieldy animals.

The Alligator is frequently caught in the African rivers, by the natives, after the same manner as the shark by Europeans. They set out on these expeditions in large boats; and, affixing a piece of beef to a hook, with a strong line, the animal no sooner seizes and swallows the bait, than it is drawn along, floundering and struggling, till quite exhausted. It is then pierced in the tenderest parts of the belly; and, after having received a sufficient number of wounds, the creature is dragged ashore.

In other parts of the world, as well as in Siam, the Alligator forms an object of savage grandeur near the regal habitations. Philips informs us, that at Sabi, on the Slave coast, there are two ponds near the royal palace, in which crocodiles are bred in the same manner as carp in Europe.

Hitherto we have been describing the Alligator of desert regions, or climes at best but little explored, where native liberty sublimates its rage, and every thing endued with life is obnoxious to its rapacity; but in Egypt, and in other countries long peopled, where the inhabitants have received some degree of civilization, and the rivers are well frequented, this animal is solitary and timid. So far from venturing to attack the human species with unprovoked insolence, it sinks at the approach of man, with the utmost precipitation, and declines the contest, as if sensible of his superior force.

Through the whole order of irrational animals, a contempt for mankind prevails, till they have experienced his irresistible powers. The lion and the tiger among beasts, the whale among fishes, and the albatross and the penquin among birds, at first encounter man without dread or apprehension; but no sooner do they feel his power, than they acknowledge his superiority, and seek for shelter in the deepest recesses of nature. This

may account for the various and contradictory accounts which travellers at different periods have given us of the crocodile and the Alligator: some depicting them as harmless and timid; as ever avoiding the sight of man, and preying only on fishes; while others rank them among the destroyers of nature, ascribe prodigious strength and malignity to them, and represent them as the inveterate enemies of the human race, whose flesh they prefer to any other. Different, however, as these accounts are, they are both equally true: for, wherever the Alligator has long reigned unmolested and secure, it is there savage, bold, and dangerous; and wherever it has been harassed by mankind, it retreats invaded, and its companions destroyed, there it becomes timorous, and forgets its native rage. Indeed, in some countries, this animal, instead of being formidable, is not only inoffensive, but even cherished and admired. In the River San Domingo, the Alligators are the most harmless creatures in nature; the children play with them, ride upon their backs, and even beat them, without receiving the smallest injury.

The musky smell of these animals may probably render them grateful to the savages of that part of Africa; and, indeed, they are often known to cut off the parts of the Alligator which contain the musk, and to wear them about their persons as the choicest perfume. Travellers are not agreed where these musk-bags are situated; some placing them in the ears, and others in the parts of generation: the most probable opinion is, that this musky substance is contained in the glands of the arms and legs. But from whatsoever part of the body this odour proceeds, it is very strong and powerful, tincturing the flesh of the whole body of the animal with its taste and smell. The Alligator's flesh, at best, is but very indifferent food; and, unless the musk-bags are separated from it, is almost intolerable. Even the negroes themselves can scarcely digest the flesh, but the egg is by them esteemed a most delicious morsel.

Among the most savage nations there is always some degree of epicurism to be met with; and those who possess this quality spare neither pains nor danger to procure their favourite repast: for this reason, they often watch the place where the Alligator comes to deposit its eggs, and seize on the booty the instant they can take it with safety. The Alligator always breeds near fresh-water rivers; and though it is sometimes found in the sea, that may rather be considered as a place of excursion than of abode. It produces its young by eggs, as has been already hinted; and for this purpose the female chooses a place by the side of a river, or some fresh-water lake, in which to deposit her brood. She always seeks out an extensive sandy shore, where she may dig a hole without danger of detection. The shore must also be smooth, and rather shelving to the water, for the greater convenience of the animal's going and returning; and an easy path is also sought near the verge of the stream, by which the young may have readier access. When these preliminaries are adjusted, the animal is seen cautiously stealing on shore, to deposit her burden. The presence of a man, a beast, or even a bird, is sufficient to deter her; and if she perceives any creature in sight, she always returns: but, should nothing intrusive appear, she proceeds to scratch up the sand with her fore-paws, making a pretty deep hole, where she deposits from eighty to a hundred eggs, of the size of

of a tennis-ball, and of the same figure, covered with a tough white skin resembling parchment. This task she performs in about an hour: after which, she covers her eggs with the utmost care and art; and leaves them till the next day; when she uses the same precaution as before, and lays about the same number of eggs; and, the day following, as many more. At last, having deposited her whole quantity, and carefully concealed them in the sand, they are soon vivified by the heat of the sun; and, at the expiration of thirty days, the young begin to burst their shells. At this time the female appears to be instinctively taught that her young require relief; and she therefore proceeds to scratch away the sand, and to set them at liberty. Her brood, quickly availing themselves of the freedom they have gained, part of them naturally run to the water; while the more feeble ascend the female's back, and are carried thither in greater security. But no sooner do they arrive in the water, than both the female and the male immediately become their most formidable enemies, devouring as many of them as they can. The whole brood is scattered up and down at the bottom of the river; by far the greatest part are destroyed; and those who survive escape either through their extreme minuteness or superior agility.

Nor is the propagation of the Alligator obstructed by its own species alone; the eggs are not only a delicious feast to the savage, but are eagerly sought after by every beast and bird of prey. The ancient Egyptians worshipped the ichneumon as a deity, because of its success in destroying the eggs of the Alligator. At present, however, that species of vulture called the gallinazo is its most potent enemy. All along the banks of great rivers, in the tropical regions, the Alligator propagates its species in such numbers that, were it not for the vulture, a carnivorous bird which seems appointed by Providence to abridge their fecundity, the earth would soon be over-run with them. These birds are ever found in greatest numbers where the Alligators are most numerous; and, hiding themselves within the thick branches of trees which overshade the banks of rivers, they there watch the female in patient silence, and permit them to deposit their eggs in the sand without interruption: but no sooner are they retired, than they provoke one another to the spoil; and, flocking round the hidden treasure, tear up the eggs, and devour them in an instant. Nor are they less diligent in their attendance while the females are conducting their young to the water; for, should any of them drop by the way, they are sure to be immediately devoured by the vultures.

Such are the extraordinary accounts given us by modern travellers of the propagation of this animal, which have in general been adopted by Linnæus, and the most inquisitive naturalists of the age, particularly Ulloa: yet, were we disposed to argue from the general analogy of nature, the Alligator's devouring her own young as soon as she has conducted them to their natural element, seems very doubtful, and even improbable. The general idea of this animal's rapacious cruelty may have given birth to the story; whereas, in fact, the Alligator seems no more mischievous than other animals, but in proportion to its superior strength. It is highly probable that it possesses the same sensations of parental tenderness as other animals; at least, we are not furnished with sufficient evidence to the contrary.

To what age the Alligator's life may be protracted, we are not certainly informed: however, if we may credit Aristotle, the Alligator is coeval with man. But the ancients, either from a blind credulity, or a love of amusive fables respecting this animal, have invented so many fictions, that even truth from them becomes suspicious. What we know for certain from the ancients is, that, among the various animals, which fought in the amphitheatre at Rome, the Alligator was not wanting. M. Scarus produced them alive in his unrivalled exhibitions; and such was the state of luxury and enervation into which the Romans were then fallen, that they regarded him as the best citizen, because he amused them with the most extravagant entertainments.

ALLIGATOR, OPEN-BELLIED. This animal has nothing essentially different from the rest of the species, except an open purse or pouch in the middle of its belly, which seems designed by nature as a retreat for its young in time of danger; a circumstance which strongly inclines us to believe that the Alligator is not so unnatural as it is commonly represented. Except in this singular distinction, this animal has all the common marks of the Alligator already described: namely, a particularly strong, square covering of scales on the back; which, in the young ones, appears distinct and regular; but, in the old, becomes knobbed and rough; and in having small round and oval scales on the sides, and a scaly belly. It is also furnished with fins on the out-sides of its fore and hinder legs; and with two rows of fins on the superior part of the tail, which begin extremely small at the setting on of the tail, and increase gradually as they advance towards the middle, where they unite, and so continue to the extremity. The tail is roundish at its beginning; but, from the middle, where the two rows of fins unite, it is flattened like an oar. The fore-feet have each of them five toes, but the hinder only four; a distinction common to the crocodile tribe. In the fore and hinder feet, only the third and fourth toes are webbed together. The eyes are very prominent, and are so contrived as to be elevated above the water while the rest of the animal is wholly under it; in order, probably, to watch its prey less perceptibly on the surface of the water, or on the banks and shores of rivers. The head is covered with several scales; and the snout is finely creased transversely. Mr. Edwards was the first naturalist who ever described or noticed this species.

ALOPECIAS. A name of the *vulpes marina* or sea-fox.

ALOPECOPITHECOS. A name derived from the Greek; used by Aldrovandus and others to denote that singular animal the opossum.

ALOPEX. A species of dog distinguished by a straight tail tipped with black, commonly known by the name of the field-fox.

ALOSE. A kind of fish, resembling the sardine or pilchard, but much larger. Some affirm it to be the same with the shad; but it is evidently another species of fish, and very scarce in Britain. It is one of those called passage-fishes, or fish of a season, because it never enters the rivers except in the vernal months. The roes of this fish being held in as high estimation in the East Indies as those of the sturgeon in Russia, they form a very lucrative article of commerce, and are often served up at the tables of Asiatic luxury.

ALPAGNA. An animal which resembles the llamas

llamus and vigognas, except that it's legs are shorter and thicker, and it's muzzle fuller and flatter, and formed more like the human face. In Peru, the place of it's nativity, it is reckoned among the beasts of burden, and is capable of carrying about a hundred weight. The Peruvians make stuffs, ropes, and bags, of it's wool, and various mechanical instruments of it's bones.

ALPHESTES. A fish called by some cinædus, approaching nearly to the turdus or wrasse kind; but the rays or nerves of it's back-fins are prickly down to the very tail, whereas the turdus has only the anterior rays of that fin prickly, the rest being smooth. It is a small fish, and is always caught about the shores, and among the rocks. It's back is purple; it's sides and belly are yellowish; and it's mouth is small, and furnished with thick and fleshy lips.

ALTAVELA. A flat cartilaginous fish of the aquila marina species; but having it's wings, or more properly it's sides, thin, flat, broad, and obtuse, towards their extreme parts. From the strong resemblance these flat sides bear to wings, the fishermen have adopted a notion that this fish can fly. The flesh is solid and well-flavoured, and generally sells at a very high rate. It is caught on the shores of the Mediterranean, and is frequently exposed to sale in the Italian markets.

ALUCO. A name by which some naturalists have distinguished the common white owl; or, as we usually call it, the barn or church-owl.

ALUNGU. A Malabar word used to express an animal resembling a lizard, except at the head and tail, which are both pointed. It is nearly six feet long, and two broad; and is unquestionably a species of the manis of Linnæus, belonging to the tribe of ant-eaters which are destitute of teeth, but are furnished with long, round tongues, with which they collect the ants.

AMADAVADE. A curious little bird about the size of the crested wren, having a bill like a chaffinch, and spurs like a lark. The bill is a beautiful red, except on the upper part of the upper chap, where it is black in the middle; the upper part of the body is brown; the rump is of a dark red; and the prime feathers of the wings are black; as are also those of the tail, which are longest in the middle, and gradually slope to the sides. The prime and covert feathers of the wings are marked with several small white spots, and the breast and belly with larger black ones.

AMALOZQUE. An appellation under which Nieremberg describes a large Mexican bird. It frequents lakes and rivers, though not furnished with webbed feet, one of the common characteristics of aquatic birds. The breast, belly, and the under-part of the wings, are white; the tail is variegated with black and yellow; and two black circles, a finger's breadth asunder, surround the neck and breast. The beak is very long and slender; and the insects common to marshy places are it's usual food.

AMEIVA. A Brazilian species of lizard resembling the taraguira, but having a double tail. Such is the account Marcgrave gives us of this animal; but Ray very judiciously questions the fact, and seems to doubt whether there is any such species in nature. Probably what Marcgrave observed was only an accidental variety of the taraguira, or some other common lizard; or perhaps it's peculiarities originated from some external injury, or may be ascribed to a lusus naturæ.

AMERICAN SEA SUN CROWN. A name given to a marine insect, because of the resemblance it bears to the corona solis. A particular description of this animal was given by Dr. Peyssonnel in the Philosophical Transactions of 1758. That gentleman, however, could not acquaint us with it's modes of life, or what it's mechanism was; not being able, from his own confession, to distinguish a mouth, or any viscera, nor any other probable organ by which it could receive nourishment.

AMERICIMA. A Brazilian species of lizard, of very small dimensions, scarcely measuring more than three fingers breadth in length, and of the thickness of a swan's quill. It's body exhibits a square appearance; it's whole back is covered with deep, grey scales; it's head, legs, and sides, with brown ones; and it's tail with blue: all which are extremely glossy and smooth to the touch. It's feet are very little thicker than hog's bristles; and it is generally esteemed venomous.

AMMOCETUS. A name given by Gesner, and some other naturalists, to the ammodytes or sand-eel, called also tobianus by Schoneveldt.

AMMODYTES. A genus of fish, the characters of which, according to Artedi, are the subsequent. The branchiostegæ membrane contains on each side seven bones; but these, however, are in a great measure concealed by the laminæ of the bronchia; the head is compressed; the body is oblong and slender, nearly cylindrical, but a little compressed, and destitute of belly fins. This fish is of the malacopterygious, or soft-finned kind. The other characters of the species enumerated by Artedi, are these: the lower-jaw is largest; the lateral lines are double, or two on each side; the pectoral fins have each twelve rays; the back-fin has fifty-four; that of the anus has twenty-eight; the tail is bifid, and has fifteen long rays; the mouth is destitute of teeth; and the anus is nearer the tail than the head. To this fish the inhabitants of Great Britain give the name of the sand-eel. It is commonly found at about half a foot deep under the sand, when the tide ebbs; and is caught with iron hooks, with which the fishermen pull it out. The name is derived from Ammos, Sand; and Dytes, a Diver; expressing a quality peculiar to this animal, that of diving into or hiding itself in the sand. This genus is referred to the order of apodes in the Linnæan system.

AMMODYTES. A species of serpent called also the serpens cornutus. It is nearly the size of the viper, and is of a yellowish or sand-colour. It's head resembles that of the viper, except that it's jaws are wider: and in the upper part it has a kind of wart, like an excrescence, supposed to represent a horn; whence it's appellation of serpens cornutus, or the horned serpent. It is found in Lybia, and in some parts of Italy; where it is called the ammodytes, or sand-snake, from it's sand-like colour, as well as from it's quality of sometimes running under the sand.

AMMODYTES OF CEYLON. A very large and dangerous species of serpent; it's mouth being furnished with a great number of very sharp teeth. The eyes are large and sparkling; and the forehead is covered with small round scales of various colours; some yellow, others red, and the rest variegated with red and black: the body, both above and below, is of a whitish ash-colour; and on the back are angular spots variegated with white and brown. The scales on the upper part of the body

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body are placed like net-work, with large interstices; and the tail is spotted with brown, terminating in a bony point.

AMOGLOSSUS. The classical name of a peculiar kind of flat-fish somewhat resembling the foal, and known in several parts of England by the title of the lantern. It's body is very slender, pellucid, and white; it never exceeds three inches in length; and is extremely smooth, being covered with a great number of very thin scales, which fall off on touching them.

AMORE. A genus of fish, of which there are three species; the Amore Pixuma, the Amore Guacu, and the Amore Tinga.

The Amore Pixuma has a very broad head, and a large mouth, but is destitute of teeth. It's body is oblong; it's back and sides are of a dusky iron colour; it's belly is white and protuberant; it's skin is soft; and it is furnished with seven fins, exclusive of the tail, which is rounded at the end.

The Amore Guacu is of an oblong figure, like the former, and grows to about six inches in length. The head is thick, the gills are large, and the mouth is furnished with small teeth; the eyes are small, the pupils being large, and the irides of a yellowish hue. This fish has likewise seven fins, besides the tail, which is long, and rounded at the end. It is covered with pretty large scales, and is of a rusty iron colour, but somewhat paler on the belly than in any other part.

The Amore Tinga is of the same shape with the Amore Guacu, but is much smaller, and covered with whitish scales, studded with brown spots. The tail is brown, and waved with different shades of that colour.

All the three species are esteemed wholesome food, though the first generally obtains the preference. They are natives of the American seas, and very numerous on the Brazilian coasts.

AMPELIS. In the Linnæan system, the name of a genus of birds of the order of passeres; the distinguishing characteristics of which are, that the tongue is furnished with a surrounding rim or margin, and that the beak is of a convex and straight figure. This genus has seven species.

The word Ampelis is also used by some naturalists to signify a bird of the magpye-kind, called by others the garrulus Bohemicus.

AMPHIBIA. The third class of animals, whose distinguishing characteristics, are, according to Linnæus, that they have either naked or scaly bodies; that they are destitute of grinders, or dentes molares, the other teeth being sharp and pointed; and that they are without radiated fins. The heart has but one ventricle, and they respire through their lungs.

This class is subdivided into three orders; namely, reptiles, serpents, and the swimming amphibia, comprehending twenty-four genera and two hundred and eighty-nine species.

AMPHISBÆNA. The name of a genus of serpents in the Linnæan system. The Amphisbæna, or the double-headed serpent, is remarkable for moving either backwards or forwards with equal facility; and from hence it has been thought to have two heads. This error in part originated from the thickness of the tail; which, at a distance, may easily be mistaken for another head: on a more minute inspection, however, the error becomes apparent, and the animal is found to be formed according to the usual course of nature. Both extremities are nearly of an equal thickness; the co-

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lour of the skin resembles that of the earth, and is rough, hard, and covered with various spots. Some have affirmed that it's bite is dangerous; but this is evidently a mistaken opinion, as it is destitute of the fangs, and consequently wants the means of preparing the venom. Indeed, this animal is only formidable from it's similitude to the viper.

Linnæus enumerates two species of Amphisbæna; which he distinguishes by the names of the fuliginous, and the white, both natives of America.

AMPHISBÆNA AQUATICA. A name given by several naturalists to that long and slender insect called the seta aquatica, and vermis setarius. It receives the name of Amphisbæna from it's peculiar property of having both a progressive and retrograde motion, which it performs with equal celerity. It's usual length is four or five inches, and it's thickness about that of a fine horse-hair.

The ingenious Lister, in prosecuting his enquiries into the history of a very different sort of insect, discovered the origin of this worm. Distinguishing one of the common black-beetles dug up in a garden, he perceived two of these hair-worms, or Amphisbæna, in it's belly; and, repeating his experiments, he found that the black-beetle usually contained two or three of these little animals, which crawl out immediately on opening the body. The creatures, when put into water, swim about very nimbly for a considerable time: but often thrust their heads above the fluid, as if desirous of escaping; sometimes fastening with their mouths on the sides of the vessels in which they are immersed, and drawing their whole bodies after them.

The Amphisbæna Aquatica is commonly found in the water, as it's name imports; but it is frequently met with in the earth, and sometimes on the leaves of trees and shrubs in hedges and gardens.

AMPHITRITE. A small naked sea insect, of an oblong figure, with only one tentaculum which is like a piece of fine thread. There are several species of the Amphitrite; some of which are marginated, and variously indented, so as to resemble quills.

AMPHODONTA. Such animals as are furnished with teeth in both jaws.

AMPULLACEÆ CONCHÆ. A name by which some naturalists have expressed a genus of shells, called by others conchæ globosæ and dolia, and by the French naturalists tonnes. See **DOLIUM.**

AMYGDALA. The name of a species of echinus marinus, of the genus of brissoides.

AMZELL. A name applied to a bird of the merula or blackbird kind, of which there are three species; viz. the Ring or Rock Amzell, or merula terquata; the merula montana, or Common Amzell; and the merula rosea, or Rose-coloured Amzell.

The Ring Amzell is very little larger than the blackbird. It's back is of a dusky blackish brown; it's throat and breast are beautifully variegated with spots and streaks of white; and the lower part of the throat is adorned with a fine white ring, whence the bird obtains it's name. This ring is of a lunated shape, the points terminating at the sides of the neck. The wings and tail are of a blackish hue; but somewhat varied with a greyish white in the female. This bird is common about the Peak in Derbyshire, and is there called the rock ouzel.

The Common Amzell differs from this last, in not having any ring about it's neck; that part being

variegated with a brownish red intermixed with black spots.

The Rose-coloured Amzell is common in Lapland and some other European countries, but is seldom found in Great Britain. See OUZEL.

ANABLEPS. In the Artedian system, the name of a new genus of fish of the malacopterigious kind; the distinguishing characteristics of which are, that the branchiastegic membrane contains six bones, and there is only one small fin at the extremity of the back. Of this species of fish there are but few specimens extant. The Anableps is a species of the cobitis in the Linnæan system.

ANACA. A Brazilian species of parroquet, about the size of a lark. The beak is brown and hooked; the crown of the head is covered with liver-coloured feathers, and there are circles of brown ones near the eyes. The throat is grey; the upper-parts of the neck and sides are green; the belly is of a reddish brown; the back is green, with a pale brown spot; and the tail is likewise of a pale brown. At the top of each wing is a deep blood-red mark; and the other parts of the wings are green, except their extremities, which have a blueish tinge. The thighs are covered with green feathers, and the legs and feet are grey.

ANACANDAIA, or ANACONDA. A Ceylonese serpent of enormous magnitude, extremely mischievous among cattle; whence it has also obtained the name of bubalinus.

The following strange account of the Anaconda, said to be written by an English gentleman resident in the East Indies, and signed R. Edwin, was inserted in the Edinburgh Evening Courant of August 15, 1768, and from thence found its way into most of the English periodical miscellanies. We give it, therefore, rather as the only particular account we have been able to obtain of this astonishing serpent, than as one on which we can think of hazarding our own veracity.

‘Some years since the commands of my directors carrying me to Ceylon, to transact an affair of no little consequence, I had an apartment prepared me on the skirts of the principal town, facing the woods. At some distance from my window there was a rising ground, on which stood three or four large palm-trees, that afforded me every morning, as I lay in bed, a delightful prospect. One morning, as I was looking at these, I saw, as I thought, a large arm of one of them in strange commotions, bending and twisting about (but there was no wind) and often striking one end to the earth, then raising it again, and losing it among the leaves. I was gazing at this with great amazement, when a Ceylonese coming in, I begged him to look and wonder with me. He looked, and was more amazed and terrified than myself. In short, a paleness overspread his whole face, and he seemed almost sinking to the earth with terror. He conjured me to bar up all my doors; and then told me, that what appeared an arm of the tree, was in reality a serpent of that monstrous size, diverting itself with its various contortions, and now and then darting down to the earth for prey. I soon found the truth of what he told me; and, looking with more circumspection, saw it seize a small animal and take it up into the tree. Enquiring farther about this strange sight, the Ceylonese told me that the only wonder was, that the creature was so near us; for it was a serpent but too well known in the island, though it usually kept in the inland parts and

woods, where it often dropped from the covert of a large tree, and devoured the unwary traveller. A relation so strange as this could never have gained credit with me, had I not, at the same instant, perceived a creature capable, from its size, of doing even more than was related. The monster continued to divert itself; and we assembled in a body of twelve, all on horseback and well armed, to destroy it. We rode up towards the place: but, that we might not expose ourselves to unnecessary danger, we surrounded the ground, and rode behind a close thicket, from whence we might, unseen, level our fire-arms. It was by this time the heat of the day; and, when we arrived, we found it so much larger than we had conceived, that every man of us wished himself safely at home, and it was a long time before any one had the resolution to fire. We had now time to observe the creature; and, believe me, all the descriptions of monsters of this kind hitherto given are trifles, when compared with what we saw. The natives agreed that it was much larger than any they had ever seen, and such a mixture of horror and beauty blended together, no eyes but those which saw it can conceive. The creature was more than as thick as a slender man’s waist; yet seemed far from fat, and very long in proportion to its thickness. It often hung by its tail from the highest boughs of the tree; and being most surprizingly nimble, was now diverting itself, in the heat of the day, with a thousand gambols round the branches of the tree: sometimes coming down, twisting its tail round the bottom of the trunk, and darting itself to its whole length around. In the midst of one of these gambols, we were surprized to see it get up in haste into the tree. But the cause soon appeared: a small animal, of the fox kind, but not like our English foxes, immediately approached; which the serpent having seen coming, took this way to be prepared for it; and, darting down on the unwary creature from the tree, swallowed it in an instant. Then licking its chops, with a broad double tongue of a blackish colour, it laid itself at full length on the ground, but with its tail still twisted round the tree. In this posture I had leisure, with horror, yet with admiration, to behold it. It was covered with scales like those of a crocodile, all ridged up in the middle; its head was green, with a vast black spot in the middle, having yellow streaks round the jaws; it had a yellow circle like a golden collar, round its neck, behind which was another great spot of black; and its sides were of a dusky olive colour. Its back was more beautiful than can well be imagined: down the middle of it was a broad chain of black, curled and waved at the edge; and, round this, all the way, a narrow one of flesh-colour, the outside of that having a very broad one of a bright yellow, waved and curled in various inflexions, and spotted all over at small distances, with great round and long blotches of a perfect blood colour. Its head was very flat, but extremely broad; and its eyes were monstrously large, bright, and terrible. These were the colours as it lay motionless; but, when it moved about in the sun, it was a thousand times more beautiful: the colours, according to the several shades of light, presenting the eye with a vast variety of hues, and in many places looking like the changeable colours in silks.

‘We now all levelled at it as it lay, and fired at its head; but, whether it accidentally moved just at that time, or our fears made us take bad aim, or what-

whatever else might be the cause, we either missed or never hurt it. In short, the animal took no notice of our fire; and, after a consultation, we all agreed to make no farther attempt, till we had engaged a stronger party for the next day.

'The Ceylonefe seemed to know the creature well: they called it the Anaconda, and talked of eating it's flesh when they caught it; which they had no small hopes of doing, as it seldom quits, for a long time, any tree it once chuses for it's dwelling. I detained them to dine with me; and the afternoon was spent in relating the amazing things which one or other of the company had seen this sort of monster perform; in short, they told me a thousand circumstances which far exceeded my credulity. But what I myself beheld the following day, went as much beyond all they had told me, as what they had related seemed to exceed truth and probability.

'The next morning, having assembled to the number of more than a hundred, we had the pleasure, if I dare call it so, of finding our enemy still at his old post. He seemed very fierce, and hungry, and we soon had an opportunity of perceiving the amazing effects. There are great plenty of tygers in this country; and one, of a prodigious size, being not much less than a common heifer, now came under our serpent's tree. Instantly we heard a dreadful rustling; and, swift as thought, the serpent dropped upon it, seizing it across the back, a little below the shoulders, with it's horrible mouth, and taking in a piece of the back bigger than a man's head. The creature roared with agony; and, to our unspeakable terror, was running with it's enemy towards us. It's course, however, was soon stopped; for the nimble adversary, winding it's body three or four times round the tyger's, girt it so violently, that it fell down in an agony. The moment the serpent had fixed it's folds, it let go the back of it's prey; and, raising and twining round it's head, opened it's own mouth to the full extent, and seized the whole face of the tyger, biting and grinding it in a most horrid manner, and at once choaking and tearing the creature to pieces. The tyger, on this, reared up again; and words are too poor to paint it's agony! It writhed and tossed about, but all in vain; the enemy, wherever it went, was still with it, and it's hollow roaring within the destroyer's mouth was dreadful beyond expression. I was for firing on the monster in this state: but my companions protested against it, telling me they knew it's custom so well, that they were very sure of mastering it in the end, without any trouble or hazard; but if they were then to disturb it, the animal would be so outrageous that some of our lives must assuredly pay the forfeit. They seemed to know so well what they were about, that I readily acquiesced. Several of us spent the whole day in observing this strange spectacle; and, surely, the agonies of the tyger were beyond all that can be conceived, and it's death more horrid than a thousand other deaths with all their tortures united! The tyger was a very strong and fierce creature; and, though unable to hurt or get rid of it's cruel enemy, gave it prodigious trouble. A hundred times would it rear up, and run a little way; but soon fell down again, partly oppressed by the weight, and partly by the folds and wreathed twists of the serpent round it's body. But though the tyger fell, it was far from being entirely conquered, or at all manageable. After some hours, it seemed much spent, and lay as if dead; when the serpent, which had many times violently girded

itself round the tyger, vainly attempting to break it's bones, now quitted it's hold, twisting it's tail only round the neck of it's prey, which was in no condition either to resist or escape. It made towards the tree, dragging with some difficulty it's victim after it; and now appeared the double use of the tree to the serpent. Nature seems to instruct this creature that, though it can conquer such large animals, their bodies are too thick for it's swallow, and it must therefore break their bones, and reduce them to a soft mass, before it can manage them. This it usually does, (as we saw attempted on the tyger) by girding the body very firmly round, and then crushing it to pieces: but, when that method proves ineffectual, it has recourse to the tree, as we now had opportunity of observing. Having by degrees dragged the tyger to the tree, and the animal being unable to stand, the serpent seized it lightly a second time by the back, and set it on it's legs against the trunk of the tree; then, winding it's body round the tyger and the tree together several times, it girded both with such violence, that the ribs and other bones began to give way: and, by repeated efforts of this kind, it broke all the ribs, one by one, each of which gave a loud crack in breaking. It next attempted the legs, and broke them severally in the same manner, each in four or five different places. This employed many hours, during all which time the poor tyger remained alive; and, at every crack of the bones gave a howl, not very loud, but piteous enough to pierce the most obdurate heart, and make even man forget his natural antipathy to the tyger, and pity it's misery. After the legs, the serpent attacked the skull in the same manner: but this proved so difficult a task, that the monster, overcome with fatigue, and seeing it's prey in no condition to escape, left it for the night at the foot of the tree, into which itself retired to rest. This gave us an opportunity of going home; and, for my own part, I could not sleep for thinking of the poor tyger, which was naturally so strong and vigorous that we left it still alive, though broken and mangled in this miserable condition.

'In the morning, on returning to the thicket, we beheld a surprizing change: the body of the tyger, which now seemed one red lump of shapeless matter, was dragged to some distance from the tree, and shone all over as if covered with glue or jelly. We soon plainly discovered the meaning of all this, the serpent being still employed in producing that appearance. It had laid the legs one by one close to the body, and was now placing the head straight before, licking the body, and covering it with it's slaver; which, coating it over like a jelly, rendered it fit for swallowing. Much time was employed in this business: but, at length, the serpent having prepared the whole to it's mind, drew itself up before it's prey; and, seizing the head, began to suck that, and afterwards the body, down into it's throat. This was the work of so much time, that I left the monster struggling at the shoulders when I went home to dinner; and, by the accounts of those who staid to watch, it was night before the whole was fairly swallowed.

'The following day, we assembled for the last time: when the very women and children followed; convinced that, as it had gorged it's prey, there was then no danger. I was by no means satisfied of this till I reached the place, but then found it very true. The serpent had so loaded it's belly, that it could neither fight nor retreat. It attempted, on our approach, to climb the tree; but, being unable,

unable, was soon dispatched, by striking it on the head with large clubs. I then measured it, and it's length was thirty-three feet four inches. Being immediately cut up, it's flesh appeared whiter than veal; and, from the report of those who eat it, was far more delicious than any flesh they had ever before tasted."

ANADROMUS. A term of distinction in ichthyology, serving to denote such fishes as have their stated periods of going from the fresh-water to the salt, and afterwards returning to the fresh-water again; of which kind are many of the truttaceous species.

The method nature seems to have decreed for their course of changes seems to be the following: they are first produced from the spawn in fresh-water rivers, where they continue till they arrive at a proper size, and acquire some strength; after which they seek the salt-water, in order to feed more at large, and attain to their full dimensions. At this period they return to the freshes, to deposit their spawn, that their young brood may have the same advantages of spending their adolescent state in more security; when they again revisit the sea.

The term is derived from the Greek words, Ana, Back again; and Dromos, a Course.

ANARRHICAS. The Artedean name of a fish called by others the *lupus marinus*. In the Linnæan system, it is a genus of the order of apodes.

ANAS. In the Linnæan system, the name of a large genus of birds of the general order of anseres. The distinguishing character of this genus is, that the beak is convex, terminating in an obtuse point; such as the swan, the goose, the widgeon, the duck, &c.

ANAS CAMPESTRIS. The name of a bird common in France, usually called the tetrax and canne petriere. It is of the size of the pheasant, and of the nature of the bustard, having no hinder toe. It runs very swiftly, makes it's nest on the ground, and sits in the water after the same manner as the duck, from which circumstance it derives it's name.

ANATIFERÆ CONCHÆ. The name of a genus of shells of the multivalve kind. These shells are quinquivalves; and are composed of two large valves, with two smaller ones beneath them, and a long, narrow, spur-like valve, which connects them, and runs lengthwise. The cabinets of the curious furnish only four species of this genus.

The Latin name *Anatifera* is derived from the fabulous story of their becoming geese; whence, also, the English name barnacle, as they were supposed by our credulous progenitors to breed the barnacles or brent-geese.

ANCHOVY. A well-known small fish much used in sauces, as it's name implies both in the Spanish and Italian languages. Scaliger describes the Anchovy as a species of the herring, about a finger's length, having a pointed snout and a wide mouth with serrated gums instead of teeth; others make it a species of the sardine or pilchard; but modern naturalists, with better reason, esteem it a peculiar species, very different from either.

The genuine Anchovy is caught in prodigious quantities in the Mediterranean; and particularly at Gorgona, a small island west of Leghorn. It is likewise found on the coasts of Catalonia and Provence, and sometimes on the western coasts of England and Wales. Anchovies are chiefly fished for in the night; when a light being put on the stern of the fishing vessels, they flock round, and are taken up with nets. But then it is as-

ferted, though we cannot say with what degree of credibility, that the Anchovies taken in this manner are neither so good, so firm, nor so proper for keeping, as those which are caught without that expedient.

When the heads of the Anchovies are cut off, and their gills and guts taken out, they are salted and barrelled. The common way of eating them is with oil and vinegar, after stripping them of their bones, fins, and tails. Being put on the fire, they dissolve in any liquid; or they may be made into sauce, by mincing them with pepper and other spices. Some pickle Anchovies in small earthen pots of two or three pounds weight, which they cover with plaister to preserve them the better. Anchovies should be chosen small; externally white, and internally red: they should also have round backs; such as appear flat being only a substitution of sardines. Besides these qualities, the pickle, on opening the barrels, should be well-tasted, and retain it's original flavour.

The Anchovy seldom exceeds six inches in length. It's body is slender, but thicker in proportion than that of the herring; the eyes are large, the irides being white with a yellowish cast. The inferior jaw is considerably shorter than the superior; the teeth are small, one row in each jaw and another on the middle of the tongue; the tongue has a double ciliation on both sides; and the dorsal fin, which consists of twelve rays, is placed nearer the head than the tail. The scales are large and deciduous, the back is green, and somewhat pellucid; the sides and belly are silvery, and the tail is bifid.

ANDIRA, or ANDIRA GUACU. A Brazilian species of bat, the largest of which is as big as an European pigeon. The Andira are frequently called horned bats, from a sort of excrescence or pliant body above their beaks. Some of them are accounted very dangerous; as they get into chambers during the night, and open with so much subtlety the veins in the feet of those who are asleep, that the mischief is not perceived till the effusion of blood, which it is often difficult to stop, occasions a discovery. The tongues and hearts of these animals are supposed by the natives to possess poisonous qualities.

ANDORHINA. A name by which the Portuguese in the Brazils call the Brazilian swallow, more usually known by it's Brazilian name *tapera*.

ANEMONIES, SEA. A species of the actinia; the natural history of which has lately been ably elucidated by the Abbé Dicuemarre, who has discovered four or five different species. They vary considerably in their size, shape, and colour, but are generally found to resemble a truncated cone: and many of them are of an uniform colour, while others are striated with regular, and some with irregular spots. They are found adhering to rocks or stones in the sand, or in oyster-beds; and they are observed to stretch out their limbs and mouths, in order to seize whatever touches the surface of the sand where they lodge. This accurate observer could easily distinguish these animals from plants, by their progressive motion; by the means they employ to secure their prey, and to defend themselves; by their deglutition, digestion, and evacuations; and also by the propagation of their species. He accordingly places them among the number of spontaneous animals. The Anemonies have a surprizing power of reproduction; for, by many experiments, this property has been ascertained, which the Abbé conjectures arises from

from their gelatinous texture. Their limbs bud-
ded out successively, after several amputations: nay,
some of them being dissected through the body, the
basis, together with that part of the stump which
was left, survived, and projected new limbs, and
the animals soon began to move, and eat bits of
muscles, their usual food. They appear to have a
considerable degree of heat, and to live in a va-
cuum, or at least in a very rare air; and, for a con-
siderable time, they require no other subsistence
than what they find diffused in the salt-water.

The Anemonies are irritable to a very high de-
gree; and they are excessively affected by the light,
though to appearance they have no eyes: the Abbé
has accordingly made use of them to indicate the
different changes of temperature in the atmosphere;
and of this new kind of barometer he favours us
with the subsequent account.

The sea-water in which the Anemonies are for
this purpose placed must be daily renewed; this must
be their only nourishment; and the observation
should be made at intervals equally distant from
the time of each renewal. If the Anemonies be shut
up and contracted, there is reason to apprehend an
approaching storm; that is, high winds, and conse-
quently an agitated sea—when they are all shut,
but not remarkably contracted, they indicate wea-
ther somewhat less boisterous; but, nevertheless, at-
tended with gales, and a rough sea—if they appear
in the least open, or alternately and frequently open-
ing and closing, they indicate a medium state both of
the winds and waves—if they are quite expanded,
tolerably fine weather, and a calm sea, may be
expected—and when their parts are considerably
extended, and their limbs divergent, they infallibly
prognosticate fixed fair weather, and a very tempe-
rate sea. The glass in which they are deposited
should be swung at sea, in the same manner as the
compass, that the rolling of the ship may agitate
the water as little as possible.

These animals are viviparous; several of them
having brought forth eight or ten young ones in the
Abbé's hand. They feed on wandering nettles or
sea-gellies, and are all proper to be eaten. Being re-
moved into fresh-water, they acquire a pale colour,
their external covering becomes flabby, and they
very soon die. See *ACTINIA*.

ANGEL FISH. A beautiful fish in Sir Ashton
Lever's Museum, where it was deposited by the late
Captain Cook. The body is about fourteen inches
long, and ten wide; being wholly of a very dark olive
green, except the centre, which is of a deep yellow.
The tail, and small fins behind the gills, are of a
deep orange red, tipped with yellow; and the large
fins, the biggest of which is on the back, are also
of a dark olive green.

ANGEL FISH. The usual English name for
the *Squatina* of Pliny, called also the monk-fish by
some naturalists. This fish, though it seems to
connect the genus of rays and sharks, partaking of
the character of both, is nevertheless an exception
from each in the situation of the mouth, which is
placed at the extremity of the head. The head is
large, the teeth are broad at their base, but slender
and very sharp above, and disposed in five rows
round the jaws. By means of muscles uniting them
to the jaws, the teeth are capable of being raised
and depressed like those of the other shark tribe,
not being lodged in sockets as those of cetaceous
fish are. The eyes are small; the pupils being of a
pale green, the irides white and spotted with brown;
and behind each eye is an orifice in the form of a

crescent. The back is of a pale ash-colour, and ex-
tremely rough, having a prickly tuberculated line
down the middle; the belly is white and smooth;
the pectoral fins are large, and extend from the body,
in a horizontal position, to a considerable distance,
bearing some resemblance to wings. The ventral
fins are placed after the same manner; and in these
the double penis is situated, which forms a distin-
guishing character in the males of this genus. The
tail is bifurcated, the superior lobe being a little
longer than the inferior; and on the back, not very
far from the extremity, are two fins.

This fish grows to a great size, sometimes weigh-
ing near a hundred pounds; and is frequently caught
on the British coasts, where it preys like others of
its species. It is extremely voracious, and feeds on
flounders and flat-fish, which keep at the bottom
of the water. It is exceedingly fierce, and dangerous
to approach; and instances have occurred of its
tearing fishermen in a terrible manner, when they
have chanced to inclose it in their net, and incau-
tiously laid hold of it. It has a peculiar malignity in
its aspect; the eyes being oblong, and placed length-
wise in the head, sunk, and overhung by the skin.
The ancients made use of the skin of the Angel
Fish to polish wood and ivory; and esteemed its
flesh the greatest delicacy of all the cartilaginous
tribe, as appears from Athenæus: but the moderns
disregard it, on account of its coarseness and rank-
ness.

ANGLE SHADES. An English moth, the
caterpillar of which feeds on nettles, chickweed,
and some other plants; where it may be found
full fed about the middle of April, when it appears
large and strong, and of a fine transparent green,
with an opaque streak down the back. It changes
to a chrysalis within a spinning on the surface of
the earth; and, in the space of thirty days, the moth
appears. The chrysalis is of a fine deep glossy red
colour, and is remarkable for having two sharp
points at the extremity of its tail. The moth soon
lays its eggs, which produce caterpillars that arrive
at maturity about the beginning of July, change
to chrysalides, and appear in the moth state about
the middle of September. This brood soon after
deposit their eggs, which remain during the whole
winter in a caterpillar state, and are full fed about
the end of April.

ANGLER, COMMON. A very singular spe-
cies of fish, known to the ancients by the name of
batrachos, and *kana*; and to us by that of the
toad-fish, frog-fish, or sea-devil. It resembles a
frog in its tadpole state, from which it derives one
of its common appellations, and often grows to the
length of four or five feet. It is one of the most
deformed fish in nature. The head, which is con-
siderably larger than the whole body, is round at
the circumference, and flat above; and the mouth
is sometimes a yard wide. The under-jaw is con-
siderably longer than the upper; and both are full
of slender sharp teeth. In the roof of the mouth are
two or three rows of the same; and at the root of
the tongue, opposite each other, are two elliptical
bones, thick set with very sharp teeth. The no-
strils have no external orifice, but there are two large
internal ones in the upper part of the mouth, which
supply their place. On each side of the upper-
jaw are two sharp spines, besides others which are
scattered over the upper part of the head. Exactly
above the snout, are two long tough filaments; and
on the back are three others, to which Pliny gives
the name of *corniculæ*, and says it makes use of
them

them to attract small fish. With these extended, he informs us, it hides in muddy waters, and leaves nothing but the beards to be seen; the curiosity of the smaller fish brings them to view these filaments, and their hunger inducing them to seize the bait, the animal in ambush suddenly draws in its filaments with the little fish which had taken the bait, and instantly devours them. This story, though improbable enough, has gained credit among some of our most distinguished naturalists; though a strong presumption to the contrary may fairly be inferred, from the consideration that there is one species of this fish destitute of these filaments, which it certainly would not want were they necessary to the existence of the kind. Along the edges of the head and body are a great number of short fringed skinny substances, placed at equal distances. The ventral fins are broad, thick, and fleshy, jointed like arms, and in the insides divided into fingers. The aperture to the gills is situated behind, and is very large; the back fin is placed very low, near the beginning of the tail; and the anal fin is beneath, nearly opposite the former. The body becomes extremely slender near the tail, the end of which is quite even. The upper part of the Common Angler is of a dusky colour, the lower part is white, and the skin is smooth throughout.

Rondolelius informs us, that if we take out the bowels of this fish, the body will exhibit a transparent appearance; and that, if a lighted candle be placed within the body, as in a lantern, the whole will have a very luminous and formidable aspect. The fishermen, in general, entertain a very great veneration for this ugly fish, supposing it to be an enemy to the dog-fish, the body of that fierce and voracious animal being frequently found in its stomach; for which reason, whenever they happen to catch the Common Angler, they compliment it with its liberty.

ANGLER, LONG. A species of fish very little known by naturalists, otherwise than by description. Dr. Borlase says, that it is much longer than the common kind; that the head is more bony, rough, and aculeated; that it has no fin-like appendages round its head, but that on each side of the thinner part of the body there is a series of them three quarters of an inch in length, beginning beneath the dorsal fin, and reaching within two inches of the tail; and that, at the extremity of the pectoral fins, there are spines nearly two inches long, and others of three quarters of an inch at the end of the tail.

ANGUELLA. A name given by some naturalists to the fish more usually called the hospetus or atherina, commonly caught on the shores of the Mediterranean, and esteemed very delicate food.

ANGUILLA. See EEL.

ANGUILLIFORM. A term applied to express a very large class of fishes, which are soft and lubricous like the eel, and destitute of scales. This term is derived from the Latin words *Anguilla*, an Eel; and *Forma*, Shape or Appearance.

Most fishes comprized in this class are long and slender-bodied like the eel: some have no fins either at the gills or belly, as the murus and lampetra; others have fins at their gills, but none on their bellies, as the sea-snake, eel, conger, ophidion, and ammodytes; and others are furnished with both, as the teniæ, mustellæ, alaudæ, and the like.

The word Anguilliform is also applied to certain land animals, bearing some distant resemblance to eels, though they certainly do not belong

to that class. In this sense we speak of Anguilliform worms, &c.

ANGUIS. A distinct and numerous genus of the order of serpents, and class of amphibious animals, in the Linnæan system; the characteristics of which are, that they have a scaly body of a cylindric figure, and are destitute of feet. See SNAKE.

ANGUIS ÆSCULAPII. See COLUBER.

ANHIMA. A Brazilian bird, somewhat resembling the crane kind, though not regularly referable to that class. It is a water-fowl of the utmost rapacity, and larger than a swan. The head is small in proportion to the body; and the bill, which is black, not above two inches long. But the most distinguishing peculiarity of this bird, is a long round horn, of an ivory colour, which grows from the fore-part of the head, and is surrounded by a small tuft of black and white feathers. This formidable bird, which seems armed at all points, has also in the front of each wing, at the second joint, two straight triangular spurs about the thickness of a swan's quill; the foremost of these spurs being about an inch long, the hinder one somewhat shorter, and both of a dusky colour. Its claws are long and sharp, and connected by a membrane, as in the cormorant and duck kinds. Its tail is about eight inches long; and its wings, when folded, reach more than half the length of the tail. The head and neck are of a yellowish colour, and covered with extremely soft feathers; the breast, belly, and thighs, are of a silvery white; and the upper part of the back is brown spotted with yellow, all the rest being black. The Anhima has a loud and terrible cry, sounding something like 'Vyhoo! Vyhoo!' It is never found alone, but always in pairs; the cock and the hen constantly prowling together: and such is said to be the fidelity of these birds, that when the one dies, the other remains by the dead carcase till it expires with hunger. It builds a nest of clay on the ground, near the trunks of trees, in the shape of an oven.

ANHINGA. A very elegant species of the mergi aquatici, or divers, in the Brazils, particularly among the people called Tupinambæ. This fowl is thus described by Willughby. Its body, except the neck, is the size of a common tame duck's; its bill, which is sharp and slender, is three inches long, the foremost half of the lower and upper parts containing a double row of little hooked teeth inclining backwards; its head, which somewhat resembles a serpent's, is not two inches long; its eyes are black, encircled with gold; and its round slender neck is a foot in length, though the body is only seven inches. The legs are remarkably short, and the thighs are feathered. It hath four toes; three turned forwards, joined together by membranes, after the manner of ducks or cormorants; the fourth shorter, extended sideways below, and joined to the rest by a membrane. The claws are very sharp and crooked. It has a broad tail, ten inches long, consisting of twelve feathers; and the wings terminate about the middle of the tail. The bill is grey, and after its rise a little yellowish. All the head and neck are covered with very fine feathers, as soft to the touch as velvet; on the upper side a colour from grey inclining to yellow, and those at the throat being entirely grey. The whole breast, lower belly, and upper legs, are covered with soft feathers of a silver colour; and the beginning of the back is clothed with brown ones, each having an oblong spot of whitish yellow in the centre, so that it appears speckled:

led: the rest of the back is black. It has long wings covered with short feathers, spotted at the beginning, like those of the back; which are succeeded by a row of half grey and half black ones; (that is, on one side the shaft grey, on the other black:) the prime feathers being all black. The tail consists of black and shining feathers, tipped with grey. The legs and feet are of a dark yellow inclining to grey. The Anhinga is remarkably cunning in its method of catching fish; for, after the manner of serpents, first drawing up its neck, it darts forth its bill on its prey, and then seizes it with its claws. Willughby says he has tasted the Anhinga, and that its flesh is very little superior to that of the gull.

ANI. The name of a Brazilian bird, somewhat allied to the parroquet kind, and very common in the woods. It is about the size of a thrush, and entirely black.

ANIMAL. A being which, besides a vegetative and generative power, qualities common also to vegetables, is farther endued with sensation, and spontaneous locomotion. Among the infinite variety of productions which the earth offers to our notice, Animals are therefore certainly entitled to the first rank; as well because of the finer formation of their parts, as their superior power. Compared with the vegetable world, which is fixed to one spot, and obliged to wait for its accidental supplies of nourishment, Animals bear distinguished pre-eminence, and rise to the highest rank in the scale of created things. Far the greater part of Animals are capable of changing their situations, and consequently of seeking that nourishment which is most agreeable to their state; while vegetables are unable to correct the disadvantages of situation, or to shield themselves from the dangers which every object possessed of motion may bring upon them. Those few Animals which are fixed to one spot, even in this seemingly helpless situation, are nevertheless protected from external injury by their shelly covering, which they can close at pleasure, and thus defend themselves from assault. Every Animal, from the highest to the lowest ranks, by some means or other natural to itself, finds security and protection from injury, by force, cunning, swiftness, or courage; but vegetables are totally unprotected, exposed to every assailant, and patiently submissive in every attack. This distinction, indeed, forms the barrier between the Animal and vegetable tribes: an Animal is an organized being, provided in some measure with weapons for its own security; a vegetable is confined to a single spot, and incapable of self-defence.

But though definitions are scarcely necessary to enable the most ignorant to distinguish a plant from an Animal, they both possess so many corresponding properties, that the two kingdoms, as they are called, seem blended together. Hence it is often difficult to determine where the Animal life commences, and the vegetative terminates. The sensitive-plant, which shrinks from the touch, seems to have as much perception as the fresh-water polypus, which is possessed of a still slower locomotive power. However, the polypus not only hunts for its food, as most other Animals do, but it changes its situation, and consequently has the faculty of retreating from danger; while the sensitive-plant can neither quit its place, nor receive its nourishment, after the Animal plan.

However, both classes have many resemblances, by which they are raised above the unorganized and inert masses of nature: both are endued with life

and vigour, have their states of improvement and decay, are capable of reproducing their kinds, seem all possessed of sensation in a superior or inferior degree, and have their respective antipathies and inclinations. As all Animals are alternately supported by vegetables, so vegetables are greatly propagated by becoming a part of Animal food. Birds distribute the seeds wherever they fly, and quadrupeds assist to give them greater luxuriance. By these means the quantity of food, in a state of nature, is kept equal to the number of the consumers: and, that even the weakest Animals may find a proportionable supply for their wants, Providence has appropriated different vegetables to different appetites.

Again, if we compare vegetables and Animals, with respect to the places of their growth, we shall find them bearing a still stronger similitude. The vegetables produced in a dry and sunny soil are strong and vigorous, though not luxuriant; so also are the Animals common to such a climate. Those, on the contrary, which are the joint production of warmth and moisture, are luxuriant and tender; and the Animals, assimilating to the food on which they subsist, are much larger in such countries than in others. Thus, in the internal regions of South America and Africa, where the sun usually scorches all above, and inundations cover all below, every Animal, even the insect and the reptile tribes, grows to a prodigious size: the earth-worm of America is often a yard long, and as thick as a common walking-cane; the boiguacu, the largest of the serpent race, sometimes measures forty feet in length; the bats in those climes are as large as rabbits; the toads bigger than ducks; and the spiders equal in size to sparrows. On the contrary, in the frozen regions of the north, where vegetable nature is checked in its growth, the few Animals which inhabit those regions partake of the diminution; all the wild Animals, the bear excepted, are smaller than in the more genial climes; and such of the domestic as are carried thither, soon degenerate and dwindle away in size. The very insects of the arctic regions are of the minute kinds; the bees and spiders not being more than half as large as those of the torrid zone.

The similitude, however, between vegetables and Animals, is no where more obvious than in those which belong to the ocean, where the nature of the one is admirably adapted to the necessities of the other. The watery element, it is well known, produces its vegetable stores in great abundance, and is plentifully stocked with insects which subsist upon them. Over extensive tracts of ocean, a weed is seen floating, covering the surface, and exhibiting the appearance of a green and extensive meadow. On the lower side of these fluctuating plants, millions of little Animals are found, which appear excellently calculated for such a mode of existence: for, as the plants on which they subsist lie over their heads, their feet are placed on their backs; and, as land Animals have their legs below their bodies, these have them placed above. At land, also, Animals in general are furnished with eyes to assist them in procuring their food; but, at sea, almost all the reptile kinds are destitute of sight, which might only give them prospects of danger, without assisting them to avoid it.

Thus, throughout every part of creation, there is an obvious affinity between the Animal and the vegetable kingdoms: in general, however, it may be observed, that the more perfect races have the least similitude

similitude to the vegetable productions; while, on the contrary, the meaner the Animal, the more local it is found to be, and the more it is affected by the peculiarities of the soil where it resides. Numbers of the more humble reptile kinds are confined to a single plant; nay, even to a single leaf: on that they subsist, increase with it's vegetation, and seem to decay as it declines. These are the circumscribed inhabitants of a single vegetable: if removed, they instantly die; being entirely assimilated to the plant on which they feed, partaking of it's medicinal qualities, and often assuming it's very colour. Hence an infinite variety of the humbler animated tribes are never seen but in one particular country; they are incapable of existing apart from their kindred vegetables, which are only the produce of certain climates. More perfect Animals, however, lead a life of less dependance; and some of the more generous kinds are found to subsist in various parts of the world at the same time. Yet, of all the tribes of animated nature, man, the noblest Animal, appears least affected by the diversity of soil, and the least influenced by the variations of vegetable subsistence: equally unaffected by the luxuriance of the warmer climates, or the sterility of the frozen, he has spread his habitation over the whole world; and finds the means of subsistence as well amidst the polar regions, as the burning deserts of the equator. Man, therefore, may be called the Animal of every climate, as he is neither circumscribed to zones, nor confined to territories; but exists in every climate, and suffers but very gradual alterations from the nature of his situation.

As to Animals of a meaner rank, whom man compels to attend his peregrinations, these being habituated to live in a kind of constraint, and upon food often different from that of their native soil, soon alter their nature with their nourishment, and assimilate themselves to the vegetables on which they are fed. Thus man, the lord of the creation, himself unaffected in any very perceptible degree, directs the nature of other Animals at pleasure, and trains them to his use or his humour. In those wide uncultivated wildernesses, where man, in his savage state, possesses inferior strength, and the beasts claim divided dominion, the whole forest swarms with noxious Animals and vegetables; Animals in a great measure yet undescribed, and vegetables which want a name.

The aim of man has ever been to subdue the earth to his own use; and where arts and civilization have been introduced, this is in a considerable degree happily effected. In a state of nature, Animal life is increased to the greatest quantity possible; in a state of improvement, it is reduced to more contracted limits: but the greatest possible increase of life would be insufficient, were there not other Animals which subsisted on Animals; and which themselves, in their turn, are food for superior Animals. Were all Animals to subsist on vegetables, thousands of beings must soon become extinct, from a deficiency of provision: but, as Providence has wisely constituted things, one Animal supports another, and thus the infinite variety of existences which people the earth, are all supplied with food suited to their respective natures.

Human industry has been successfully employed to diminish the number of Animals, and increase that of vegetables: and, if we take a comparative view of the different kinds, we shall find that, with respect to man, among the vast variety in the Ani-

mal kingdom, few are beneficial to him; on the contrary, in the vegetable, very few are entirely noxious. For instance, how small a part of the insect tribes are beneficial to man, and what numbers are inimical! In some countries they almost darken the air; a candle cannot be lighted, without their instantly flying round it, and extinguishing the flame; neither the sleeping nor the waking hours of man are unannoyed with these pernicious beings; the most beautiful landscapes in nature only invite their rapacity; and even the coldest recesses are no protection from their assaults. As these minute Animals are injurious from their multitudes, so the larger kinds are equally dreadful to him from their native ferocity. In the most uncultivated regions, these maintain undisputed empire; and man presumes on their territories with dread and apprehension. These Animals are either troublesome or formidable to the human race; but there are still a greater number entirely useless, and which only occupy the room which more beneficial creatures might possess, incommoding mankind rather with their numbers than with their enmities.

Thus, on enumerating the amazing variety of land Animals, which have been estimated at twenty thousand, we can scarcely reckon up a single hundred from which man derives any considerable benefit: the rest are all either his open or his secret enemies; immediately attacking him in person, or intruding on that food he has appropriated to himself. Vegetables, on the contrary, though existing in a greater variety, are but few of them noxious: the most deadly poisons, being properly corrected, are often of the most essential service in medicine; and even those plants which seem only to encumber the ground, serve for food to a race of Animals which mankind either regard with friendship or indifference.

Hence it will appear, that though no original species of Animal or vegetable life is entirely extinct, when man has long exercised dominion, and become undisputed lord, he has exterminated his enemies in every possible degree, and driven them to haunts where he has not yet thought proper to pursue them. Still, however, an immense variety of existences is diffused around us, and it is difficult to determine where we shall begin to consider them! The number of beings endued with animation like ourselves, at first view, indeed, seems infinite. Not only the earth, the water, and the air, teem with Animals of various kinds; but almost every vegetable, every leaf, contains millions of minute inhabitants, each of which fills up the circle of it's allotted life, and some are objects of the greatest curiosity. In contemplating this seeming exuberance of nature, it is not at all wonderful that ignorance should lie down in hopeless uncertainty, and pronounce that absolutely inscrutable which requires much labour to particularize. The active and inquisitive mind, however, by no means intimidated with the immense variety, has invented a method of numbering, grouping, and classing, all the various animals which fall within it's notice: and this system, in many respects, has usurped the place of science; and fancied relations have induced naturalists to blend animals of heterogeneous natures with one another. System, indeed, may be partially useful, to assist the memory, and facilitate the acquirement of natural knowledge; but, when carried to the extent which some of the most eminent naturalists have attempted, it ceases to instruct, and tends

tends only to bewilder and perplex. As some naturalists, however, have certainly attained to a considerable degree of excellence in classing animated nature, it may not be improper just to mention their respective plans, with the chief particulars in which they differ from each other. Leaving, then, the inferior orders of systematic naturalists, whose methods, in general, have only been the amusement of a day, we shall briefly describe the several modes of arrangement adopted by Ray, Klein, Linnæus, and Pennant.

Ray, after Aristotle, divides all Animals into two kinds; those which have blood, and those which have none: placing all the insect tribes in the last class. The first grand order he divides into such as breathe through the lungs, and such as breathe through the gills; which last comprehend the fishes. In those which breathe through the lungs, some have the heart composed of two ventricles, and others only of one. In this last description are included all Animals of the cetaceous kind, all oviparous quadrupeds, and serpents: those Animals which have two ventricles, are some oviparous, as the birds; and some viviparous, as the quadrupeds. The quadrupeds he then divides into such as have hoofs, and such as are claw-footed: the former he again distinguishes into those which have the hoof undivided, those which have it cloven, and those which have it divided into more than two parts. Animals with the cloven hoof he divides into those which chew the cud, as the cow and the sheep; and those which are not ruminant, as the hog. Animals which chew the cud he subdivides into four classes: the first having hollow horns, which they never shed, as the cow; the second including the sheep kind; the third the goat kind; and the last, comprehending such as are furnished with solid horns, and shed them annually, are of the deer kind. Descending to claw-footed Animals, he observes that some have large claws resembling the fingers of the human hand, which he refers to the ape kind; and others have the foot divided in two, with or without a claw to each division, the former being of the camel kind. The elephant makes a genus of itself, its claws being entirely covered with skin. The remainder of the numerous tribe of claw-footed Animals he divides into two kinds; the analogous, or such as bear some resemblance to each other; and the anomalous, which have essential differences. The analogous claw-footed Animals are of two kinds: they are furnished with more than two cutting teeth in each jaw, and are carnivorous; or they have only two cutting teeth in each jaw, and subsist principally on vegetables. The carnivorous kinds are divided into the great and the little. The great carnivorous Animals are subdivided into those which have short snouts, as the cat and the lion; and those which have long and pointed ones, as the dog and the wolf. The little claw-footed carnivorous Animals differ from the great, in having proportionably smaller heads, with slenderer bodies, which qualify them for creeping into holes, in pursuit of their prey, like worms; and these are therefore called the vermin kind.

Klein makes the power of changing situations the general characteristic of Animals, and takes his several distinctions from their aptitude for such a change. Some have a locomotive power by means of feet, or similar appendages; others are furnished both with wings and feet; some can only change their situations in the water by means of fins; others

move on the earth without feet; and some change their situations by moving their shells at pleasure, while others move only periodically. Such as are without locomotive powers are, however, quite unnoticed. The quadrupeds which move chiefly by means of four feet on land, he divides into two orders; the first of which is the hoofed kind, and the second the claw-footed; and each of these orders he subdivides into four families. The first family of the hoofed kind consists of the single hoofed, as the horse and the ass; the second includes those which have the hoof cloven into two parts, as the cow and the sheep; the third, being characterized by a triple division of the hoof, consists only of the rhinoceros; and the fourth, in which the hoof is divided into five parts, is in like manner confined to the elephant. The clawed kind are also divided into families: the first comprehending those which have but two claws on each foot, as the camel; the second including those which have three claws; the third, those with four; and the fourth, such as have five.

Briffon divides animated nature into nine classes: quadrupeds; cetaceous Animals, or those of the whale kind; birds, reptiles, or Animals of the serpent kind; cartilaginous fishes; spinous fishes; testaceous Animals; insects; and worms. He then subdivides the quadrupeds into eighteen orders, and takes his distinctions from the number and conformation of their teeth.

These systems, however, are all in a great measure superseded by that of the celebrated Linnæus; who, with a studied brevity, and unrivalled precision, comprehends the greatest variety in the smallest compass. According to this great naturalist, the first distinction of Animals is to be taken from their internal structures. Some have the heart with two ventricles and hot red blood; viz. quadrupeds and birds; the quadrupeds being viviparous, and the birds oviparous: others have the heart with only one ventricle, and cold red blood; viz. amphibia and fishes; the amphibia being furnished with lungs, and the fishes with gills. Some have the heart with one ventricle, and cold white serum; viz. insects and worms; the insects being furnished with feelers, and the worms with holders. The distinctions of quadrupeds, or Animals with paws, as he terms them, are taken from their teeth. These he divides into seven orders; to which he gives systematic names of his own invention. His primates, or principals, have four cutting teeth in each jaw; the brutæ, or brutes, have no cutting teeth; the feræ, or wild beasts, have generally six cutting teeth in each jaw; the glires, or dormice, have two cutting teeth both above and below; the pecora, or cattle, have many cutting teeth above, and none below; the belluæ, or beasts, have the fore-teeth blunt; and the cetæ, or those of the whale kind, have cartilaginous teeth. This celebrated system is but just sketched out; as the names of the different Animals, and their respective classes, with the most concise descriptions of each, fill two octavo volumes.

The ingenious Pennant, who has, perhaps, given to the world the most accurate system of quadrupeds that ever appeared, divides them into hoofed, digitated, pinnated, and winged quadrupeds. The hoofed quadrupeds he subdivides into such as are whole hoofed, and such as are cloven-hoofed; the digitated, into frugiferous, carnivorous, and insectivorous, regarding at the same time the number of the dentes canini; the pinnated, into pisci-

vorous and herbivorous; and the winged, which include the bats, insectivorous.

Such are the general outlines of the most famous systems which have been invented to facilitate the study of natural history. Buffon, however, with no less truth than vivacity, has exposed the absurdity of system, when applied to the works of nature; and, by the most beautiful display of one great branch of natural history, has taught us to conceive what pleasure might be expected from the study of the whole, executed on a similar plan of elegance and precision.

In natural history, of all other sciences, there is the least danger of obscurity. In morals or in metaphysics, every definition must be precise, because these sciences are necessarily founded on definitions; but it is far otherwise in subjects where the exhibition of the object itself is capable of correcting any misrepresentation. Thus, by mistake, a creature may be ranked among quadrupeds, which belongs more properly to the fish or insect classes; but this can produce very little confusion, as every reader will be able to form a system consonant to his own judgment, on examining the figure and properties of the Animal.

Animated nature, in general, is divisible into five classes: quadrupeds, birds, fishes, insects, and amphibious Animals; but, though all these seem tolerably distinct from each other in their very natures, there are some instances where we cannot easily decide whether it is a bird or a quadruped, a fish or an insect, which presents itself to our observation. Nature is varied by imperceptible gradations; so that no exact line can be drawn between any two classes of it's productions, nor can any definition be framed to comprehend them all.

Each class of quadrupeds may be arranged under one of the domestic kinds, as a model on which to form an idea of the rest: thus we may say, that a tiger is of the cat kind, and a wolf of the dog kind, because there are some rude resemblances between them; and one who has never seen wild Animals will be able to form at least a slight conception of their figures from his acquaintance with those which are tame. But we dare not assert, with some systematic writers, that a bat is of the human kind, or a hog of the horse kind, merely because there is some trivial similarity in their teeth or paps. All references of this kind, however, are merely arbitrary; and, in many cases, it must be confessed, they are very uncertain. It is difficult to determine, for instance, whether the civet should be classed with the dog or the cat kind; but the exact history of the civet being once known, it is of very little importance to what kind the different conjectures of different persons may judge it bears the greatest resemblance.

Animals consist of solids or firm parts, fluids, and matter of an intermediate nature. The solids are mere earth, connected together by some oily humour, and reducible by fire into their original substance. Thus a bone, being perfectly purged of all it's moisture by calcination, is found to become pure earth, which the least force will crumble into dust; yet the same bone, on being immersed in water, will become firm and solid again after calcination, and considerably more so in oil than in water. Indeed, the cupels or furnaces of chymists made of Animal earth will sustain the utmost effects of fire.

The fluid parts of Animals become more crude in proportion as they are nearer the lacteals and

absorbent vessels. Chyle, for example, is little more than a vegetable juice: but, in it's farther progress, it gradually loses it's vegetable characters; and, after a number of circulations, it becomes a perfect Animal juice, under the denomination of blood, from whence all the humours are derived.

Animal substances have been distinguished from those of vegetables, by two circumstances: first, that the former, when burnt, are found perfectly insipid, all Animal salts being volatile and evaporating with heat; whereas the contrary is experienced in vegetables, which constantly retain some fixed salt in all their ashes: secondly, that no pure acid is contained in any Animal juice; nor can any acid salt be extracted from it, though these qualities are known to exist in all vegetables. Animals, however, may be converted into their vegetable nature by putrefaction.

ANIMALCULE. An animal of such minute proportions, that it is scarcely discernible by the naked eye, though all nature teems with an immense variety of these creatures. Of this humble species are those innumerable hosts of insects which people the water in the summer months, tinging it sometimes with a pale or deep red colour, and sometimes with a yellow one. The Animalcule usually exhibits something of the shrimp appearance, and the most common one is called by Swammerdam, *pulex aquatica arborescens*. Their concurrence at this season, Dr. Derham observes, is for the purpose of propagating the species; and he adds, that these little insects afford a comfortable subsistence to many water animals. The green scum on the surface of stagnant waters is often solely composed of myriads of another still smaller order of Animalcules; which may probably, in their turn, be destined to supply the *pulices aquaticæ* with food. The invention of the microscope has brought to light millions of Animalcules in almost every kind of fluid; and, in the Philosophical Transactions, we meet with observations on the Animalcules in rain-water, in several chalybeate waters, and in infusions of pepper, bay-berries, barley, oats, wheat, &c. Those, indeed, who have made the most minute researches into the natures of the several objects subjected to their senses, have discovered that the substances on which they employed their curiosity were often totally different from what they were originally apprehended. From such investigations it appears that the whole earth is replete with an infinity of Animalcules floating in the air we breathe, disporting in the liquors we drink, and adhering to every object of the sight or touch. The conjectures and hypotheses relative to the production, generation, structure, and use, of these Animalcules, invented by caprice, and adopted by credulity, have been more various and contradictory than it is easy to conceive. Avoiding, therefore, these inexplicable labyrinths, we shall confine our observations to actual discoveries. By the assistance of the microscope, we not only perceive that such Animalcules really exist, but are enabled, in some degree, to determine their shapes, and the various peculiarities of their motions. Indeed, the contemplation of known Animalcules has rendered the idea of infinitely small bodies extremely familiar to all mankind. A mite was formerly thought the utmost limit of animated minuteness; but our credulity is not, at present, greatly alarmed, when we are told of animals even twenty-seven millions of times smaller than a mite. Minute animals appear to be proportionably stronger, more active, and

and vivacious, than larger ones. How infinitely does the leap of a flea exceed any thing of which greater animals are capable? How amazingly faster than the best race-horse does a mite run, in proportion to their respective sizes? M. De Lisle has given the computation of the velocity of a small creature, scarcely discernible by the naked eye, which he found to run three inches in half a second: now, supposing it's feet to be the fifteenth part of a line, it must make five hundred steps in travelling three inches; that is, it must shift it's legs five hundred times in a single second, or the ordinary pulsation of an artery.

Sir John Hill has arranged Animalcules under three classes; namely, those which have no tails, nor any visible limbs; those which have tails, but no visible limbs; and those which have visible limbs: each of which classes he subdivides into several distinct genera.

Animalcules, however, may be more properly reduced to visible, invisible, and microscopical. Visible Animalcules are such as are perceptible by the naked eye; of which kind we may enumerate mites, with several species of insects, reptiles, and other vermin. Invisible Animalcules are a race of beings neither perceptible by the natural eye, nor even by the best microscopes; concerning which naturalists, of course, form many strange conjectures. Reason and analogy, indeed, give some support to our idea of the existence of an infinitude of imperceptible Animalcules. The naked eye is adapted to the inspection of all animals not less than the mite; there a new order of beings commences, reserved for the microscope, and comprehending all descriptions of creatures, from the mite to such as are twenty-seven millions of times smaller: nor can this last order be considered as completely limited, till we suppose the microscope arrived at the highest degree of perfection.

Microscopical Animalcules are such as are only perceptible by the assistance of a large magnifier; and these, according to some naturalists, fall most properly under the last class of invisibles. The excessive minuteness of these Animalcules conceals them from the naked eye; and one of the most considerable improvements in modern philosophy is the invention of those instruments which bring such creatures under our cognizance and inspection. An object a thousand times too minute to affect the optic sense, might have seemed wholly excluded from our observation; but human sagacity has contrived means to extend the faculty of sight inconceivably farther. Indeed, most of our microscopic Animalcules are so extremely minute, that, through a lens, the focal distance of which is the tenth part of an inch, they seem only like so many points: that is, their figures cannot be distinguished; so that they appear, from the vertex of that lens, under an angle not exceeding a minute. If we farther investigate the real magnitude of such an object, it will be found nearly equal to $\frac{1}{10000}$ of an inch in length. Supposing, therefore, these Animalcules of a cubic figure, (that is, of the same length, breadth, and thickness) their magnitude will be expressed by the cube of the fraction $\frac{1}{10000}$; that is, by the number $\frac{1}{100000000000}$; and so many parts of a square inch does each Animalcule in that case equal.

Strange as it may seem, it is undoubtedly true, that many thousands of these Animalcules would have sufficient room to dance on the point of a common needle: and, indeed, some liquids abound

with such amazingly minute Animalcules, that the magnitude of the whole earth is not large enough to be a third proportional to these diminutive floating animals, compared with a single whale.

Animalcules are found of various kinds; some formed like fish, others like reptiles, some hexapedal, and others horned. In several kinds, however minute, it is easy to discover the form of their mouths, their proboscides, and horns, with the motions of their hearts, lungs, and other parts. Every Animalcule being an organized body, how delicate and subtle must be the several parts which constitute such a creature, and preserve it's vital functions! It is difficult to conceive how, in so narrow a compass, there can possibly be contained a heart, the fountain of life; muscles necessary to the creature's motions; glands for the secretion of it's fluids; a stomach and bowels to digest it's food; and other innumerable members, without which the minutest Animalcule could by no means subsist. As every one of these members, however, is also an organical body, they must necessarily be composed of parts, adapted to their respective actions. They consist of fibres, membranes, veins, arteries, nerves, and coats, with an almost infinite number of fine small tubes, the minuteness of which exceeds every effort of human imagination. But there are still other parts which must of necessity be even less than these: and such are the several fluids permeating those fine tubes, as the blood, lymph, and animal spirits; the subtlety of which, even in large animals, is almost beyond conception. Lewenhoeck calculates, that a thousand millions of those Animalcules which are discovered in common water, do not collectively exceed the dimensions of a single grain of sand! This author, likewise, on examining the male sperm of various animals, discovered in many an infinitude of Animalcules, not larger than those just mentioned. In the milt of a single cod-fish there are more Animalcules than men on the whole earth. The foul whitish matter which sticks to the human teeth abounds with Animalcules of various figures, to which vinegar is fatal; and yet vinegar itself supports a species of Animalcules which are shaped like eels. In short, if we give full credit to this penetrating naturalist, every corruptible substance produces it's various Animalcules; and to these must we ascribe the original cause of many diseases. The itch, it is well known, from repeated experiments, is a disorder arising from the irritation of a species of Animalcules found in the pustules of that malady; whence the communication of it by contact is easily conceived, as well as the reason why a cure is effected by means of cutaneous applications. To the same radical cause, some have also attributed the small-pox, the measles, and other contagious diseases. Some, indeed, go farther, and pretend to reduce all diseases in general to this principle: and a late writer, in particular, has ventured not only to account for all diseases, but even for the operations of all medicines, from the hypothesis of Animalcules. Thus the most beneficial or curious discoveries in natural philosophy have laid the foundation for visionary theories, and have been introduced to support the most chimerical systems.

ANIMAL FLOWER. A name given by most naturalists to an Animal bearing some distant resemblance to the Flower of the marigold, but of a paler yellow. This name, however, seems well adapted to the Animal; for it's claws, or tentacula, being

being disposed in regular circles, and tinged with a beautiful variety of bright lively colours, very nearly represent the petals of some of the most elegantly fringed and radiated Flowers; such as the carnation, marigold, and anemone.

ANIMALS, AMPHIBIOUS. A term generally applied to signify such animals as are capable of living either on land or in the water; or, as some define it, those animals which breathe the air, but pass part of their time in the water, as affording them their chief food. The word Amphibious is derived from the Greek *Amphi*, Both; and *Bios*, Life; from their being qualified to exist both on the earth and in the water. Such are the frog, castor, otter, tortoise, sea-calf, alligator, &c. Most of the Amphibious kind, the castor and otter excepted, have peculiarities in their structure to fit them for situations so importantly different; particularly, in the heart, lungs, foramen ovale, &c. In some of these animals; (the frog and tortoise, for example) the heart has but one cavity, with an artery to receive the blood coming out of it, and a vein to convey it thither. In others, the foramen ovale appears to be still open for the passage of the blood from the vena cava to the arteria venosa, without the help of breathing. In the castor dissected by the academists of Paris, though the foramen was not found actually open, the marks of it appeared; and the cause of it's being closed up might well enough be accounted for, from the animal's having been long kept out of the water. In the otter the case is different; there being no appearance of any thing like a foramen, so that the creature is under a necessity of occasionally rising above water to take in air.

The structure of the feet of the castor at once pronounces it Amphibious; the fore-feet being formed like those of such terrestrial animals as hold their food in their feet; while the hind-feet are fashioned after the manner of river-fowls, with webs or membranes between the toes.

Many of the fly kinds may be said, in one sense, to be Amphibious. Gnats drop their eggs in water; where their young are hatched, and live and breathe after the manner of fishes: till, at length, undergoing a metamorphosis, they take wing, quit their native element, and become inhabitants of the air. Even swallows are by some writers ranged under this class, from the idea that they have been known to pass the winter asleep under water, whence the warmth of the spring has awakened and called them forth.

The term Amphibious is sometimes also extended to men who have the faculty of living a long time under water. We have many instances of such Amphibious men; the most remarkable is that of a Sicilian, named the Fish Colas; whom, Kircher relates, by long habitude from his youth, had so accustomed himself to live in water, that his nature seemed to be quite altered, and he lived rather after the manner of a fish than of a man.

Buffon, however, has considerably, and perhaps justly, narrowed the class of Amphibious animals. The sole animals, says this great naturalist, to which we can apply this name, in all the rigour of it's acceptation, are the seal; the morse, or sea-calf; and the manati, or marine ox: because these are the only ones in which the foramen ovale in the heart remains always open, and consequently the only ones which can live without respiration as well in the air as in the water.

Dr. Hunter observes that, properly speaking,

there are no Amphibious animals; for that fish cannot live long without air, though much longer than men.

Elias Geisler has written expressly on Amphibious animals; and Mr. Ottwald, of Dantzick, has left behind him anatomical observations on the same subject.

ANOCYSTI. The name of a class of the echini marini, which have the aperture of the anus at the apex of the shell. Some of these approach to a hemispheric, or spheroidal figure; while others are more flat, and bear no inconsiderable resemblance to a shield.

ANOLE. A species of lizard common in the West Indies, where it infests the houses and plantations. It is about the size of the common European lizard, but it's head is longer. It's skin is of a yellowish hue; and it's back is variegated with green, blue and grey lines, running from the head to the tail. It takes shelter in a hole during the night, where it makes a continued and disgusting noise; but in the day-time it crawls abroad, and is constantly in motion.

ANOMIA. A family of shells whose characteristic is, that they are bivalve, and unequivalve; having one valve perforated near the hinge, by which perforation they are affixed to some other body.

This family has long been known in a fossil state, and contains a great number of species; but few of them have been particularly described by naturalists, the rest being yet undiscovered recent from the sea.

Columna first remarked some fossil species; and, not finding these species mentioned by conchologists as shells, gave them the appellation of *conchæ rariores Anomia*; which term *Anomia* is now become the standard name of the family. Several succeeding naturalists considered them merely as fossils; and it is only within the last thirty years that any recent kinds have been discovered.

Gualtieri, indeed, gives the figures of three recent kinds, and has made a particular genus of them, which he calls *terebratula*. However, he defines them very erroneously, as shells with equal valves, and dissimilar sides, of a peculiar construction, instead of a beak having a perforation, and also a singular articulation or connection internally. The celebrated Linnæus, in his genus of *Anomia*, has mixed the recent with the fossil kinds; describing them as shells with unequal valves, one valve being flattish, and the other convex; the beak perforated, and the hinge inarticulate or toothless.

A few recent species only being yet discovered, it is impossible to be very accurate in the description of them. It is, however, pretty evident, that the valves of the *Anomiæ* are connected together in two different ways; and that, instead of saying they are simply inarticulate, they may more properly be described as being some joined by an inarticulate hinge, and others by a multarticulate one. The first set have no teeth or joints on the hinge; but the upper valve is always indented into a wide opening of the larger or under valve, in which it plays like a joint when the exigences of the animal require it to be opened or shut; and the second set have a visible and regular multarticulate hinge, resembling the multarticulate cockle.

From a consideration of the depth of the grooves, the indentings, and undulated margins, of these shells, and of their beaks, which are perforated or tubular

tubular quite within the shell, it appears highly probable that these animals receive their nourishment through their tubes or perforated beaks only, and that they seldom or never have occasion to open their valves. Indeed, the situations in which they are found, and particularly their internal structures, seem to indicate that the shells are not adapted for frequent opening.

This curious family of shells may be divided into two genera; the inarticulate, and the multarticulate. In the inarticulate *Anomia*, the hinge of the under valve forms a large cavity, the corners of which make two prominences or joints; and the upper valve is indented into it by a prominency corresponding with the cavity, and by two small depressions answering to the two prominences or joints. In the multarticulate *Anomia* the hinge lies in a long straight line, and is set with many teeth.

The *Anomia* has the habit of an oyster, to which it is often found affixed by a strong tendinous ligature. The larger species yet discovered measures about two inches diameter; the smaller is about the size of a cockle.

The fossil species of *Anomia* are uncommonly numerous in Great Britain; where they are found in chalk-pits, and in lime-stone and other quarries.

ANSERES. One of the six orders of birds in the Linnæan system; the characteristic distinctions of which are, a smooth beak, covered with skin, gibbous at the base, and enlarged towards the apex; the jaw denticulated, and the tongue fleshy; the feet adapted to swimming, having thin toes connected by a membrane; the legs thick and short; and the body bulky and plump, covered with a thin skin, and feathers. This order of birds is analogous to the *belluæ* in the class of *mammalia*.

ANT. A genus of insects belonging to the Linnæan order of hymenoptera; distinguished from the other genera of this order by having an erect squama, or scaly body, placed between the thorax and the abdomen.

These insects have been famous from all antiquity for their social and industrious habits; for their spirit of subordination; and for being offered as a pattern of parsimony to the profuse, and of unremitting diligence to the sluggard. More recent experiments, however, and more accurate observations, convince us that much of their boasted frugality and precaution is fictitious. The treasures they lay up are no longer supposed to be intended for future provision; and the choice they make in their stores appears not to be dictated by any very extraordinary sagacity. It is, indeed, somewhat surprising, that every writer of antiquity, every poet, and every moralist, should describe this insect as labouring only in the summer, and feasting on the produce of its toils during the winter. Perhaps, in some of the gentler climates, where the winter is mild, and of short continuance, this may be the case; but in France, England, and other northern countries, these animals can have no occasion for a supply of winter provisions; being actually, during that season, in a state of absolute torpidity.

The common European Ants are, in general, either red or black, and they are of various magnitudes. Some of them are furnished with stings, and others are wholly destitute of them: such as have stings use them for their defence; and such as are unprovided with these weapons have a

power of spurting from their posteriors an acid pungent fluid, which inflames and irritates the skin like nettles. The body of the common Ant consists of three divisions; the head, breast, and belly. In the head are placed the eyes, which are extremely black; and under the eyes are two small horns or feelers, composed of twelve joints, all covered with a fine silky hair. The mouth is composed of two crooked jaws, which project outwards; in each of which appear incisors resembling teeth. The breast is covered with a fine silky hair, from which project six legs, pretty strong, and resembling hair, having the extremities of each armed with two small claws, which assist the animal in climbing. The belly is redder than the rest of the body, which is rather of a brown chestnut colour, shining like glass, and covered with extremely fine hair. From this formation, the Ant seems bolder, and more active, than any other creature of the insect tribe of the same size; and, indeed, it possesses sufficient intrepidity to attack an animal often more than ten times its own magnitude.

No sooner is the winter past, than the Ant-hill, which before seemed a desert, again swarms with renovated life; and myriads of these insects are seen just awakened from their annual lethargy, and preparing for the enjoyments and the toils of summer. During the first day of their appearance, they never offer to quit the hill, which may be considered as their citadel, but run over every part of it, as if to examine its present situation, and observe what injury it has sustained from the inclemency of the weather while they were asleep.

At their first appearance none but the wingless tribes are to be seen, those furnished with wings still remaining at the bottom of the hill. The working or neutral Ants, which first appear, are always destitute of wings; while the male and female Ants, which are each furnished with four large wings, are more dilatory in rising from their dormant state. Thus, like bees, which they extremely resemble in their œconomy, the Ants are divided into male, female, and the neutral or working tribes. These are all easily distinguished from one another; the females being considerably larger than the males, and the labouring Ants still smaller than either. The two former generally have wings, but the latter never have any; and these last perform all the labours which contribute to the welfare and preservation of the commonwealth. The female may also be distinguished by the structure and colour of her breast, which is a little browner than that of the neutral Ant, and brighter than that of the male. In eight or ten days after their first appearance, the labours of the hill begin to be in some forwardness: the males and females appear mixed with the drudging multitude, and are active in traversing their boundaries, and sportively pursuing each other. They seem in no respect to partake of the toils of the state, but are rather employed in amorous dalliance; the males pursuing the females with great alacrity, and apparently forcing their compliance. In the act of coition they remain united for some time, during which the males suffer themselves to be drawn about at the pleasure of the females. In the mean time, the working body of the state have no participation in these enjoyments, nor concern themselves with the amorous tribes: they are employed in diligently making excursions from the hill in pursuit of food for themselves and their associates; and in providing

providing proper materials to afford a comfortable retreat for the young, and add to the security of the whole commonwealth.

In England, Ant-hills appear formed and arranged with very little regard to order or regularity; but, in the more southern provinces of Europe, they are constructed with amazing ingenuity, and seem replete with contrivance and sagacity. They are generally formed in the vicinity of some large tree, on the banks of a pleasant stream; the former for the purpose of securing food, and the latter for supplying them with that abundant moisture which is requisite for the use of these animals. The shape of the Ant-hill is that of a sugar-loaf; being about three feet high, and composed of leaves, bits of wood, sand, earth, gum, and grains of corn. These are all united into a compact body, perforated with galleries down to the bottom, and having a variety of meandering ways in different parts of the structure. From this habitation to the water, as well as to the tree, there are many paths worn by constant assiduity, along which the sedulous insects are seen continually passing and repassing; so that, from the commencement of the warm season, they are constantly employed till the unpropitious weather again suspends their exertions, and terminates their annual industry.

The working Ants are not only employed in sustaining the idlers at home, but in providing sufficient food for themselves. They subsist on various provisions, both of the animal and vegetable kinds; killing and devouring all such insects as are of inferior strength, and seeming remarkably fond of ripe fruits, and every species of sweet. Having met with any fruit, or other large substance, they devour what they can; and, tearing the rest in pieces, load themselves with the spoil. When they meet with an insect which they are singly incapable of mastering, several of them attack it at once; and, lacerating its members, each Ant loads itself with a part of the booty: and where they happen, in their excursions, to encounter any thing too weighty for one to support, and which they cannot easily divide, several of them assist in forcing it along; some dragging, and others shoving. When a single Ant chances to make a fortunate discovery, it immediately communicates the information to others, and the whole republic soon appear in motion. But while they are thus busied in feeding abroad, and carrying in provisions for the use of those which continue inactive at home, they are by no means unmindful of posterity. The female Ants soon begin to lay their eggs, which are immediately carried to the safest situation, at the bottom of the hill, where they are assiduously defended from every violence by the labouring tribe. Those white substances, however, which are found so plentifully in every Ant-hill, are not the newly-deposited eggs of the Ant, as many have erroneously supposed; on the contrary, the real egg of this animal is so very minute, that it is hardly discernible when even laid on a black ground. In fact, those little white bodies vulgarly called Ant-eggs are the young animals in their maggot state, when endued with life, and long since liberated; being often involved in cones which they have spun round themselves like silkworms. The real egg, when laid, being viewed through a microscope, appears smooth, polished, and shining; while the maggot is composed of twelve rings, and is in general very considerably larger than the full-grown Ant itself.

It is impossible to express the fond attachment which the labouring Ants shew to the rising progeny. In cold weather they bear them in their mouths to the very depths of their retreat, that they may be less liable to the severity of the season; and, when it happens to be a fine day, they remove them with the same tenderness nearer the surface, that the warm beams of the sun may contribute to accelerate their maturity. If a formidable enemy demolishes their whole habitation, crushing them by thousands in the ruin, these wonderful insects, affectionately mindful of parental duties, make it their first care to save their offspring; and, on such occasions, they may be observed running wildly about, in a state of distraction, each loaded with a young one, not unfrequently as large as itself.

Swammerdam informs us, that he kept several working Ants in his closet, together with their young, in a glass filled with earth; and that he took pleasure in observing how they dug deeper and deeper, to deposit their eggs, as the earth dried on the surface; but, on pouring water over the mould, it was equally curious to see with what care, affection, and diligence, they laboured to place their brood in safety, by carrying them to the driest parts. The same author adds, that when water had been wanting for several days, and the earth was afterwards a little moistened, they would immediately carry their young to have a share, who seemed to suck up the moisture with pleasure and avidity.

When the young maggot has attained to its full proportions, the breast insensibly swells, it casts its skin, and loses all motion; the several members which were before hidden then begin to make their appearance, and an aurelia is formed, which exhibits very distinctly all the parts of the animal, though they are yet destitute of motion, and wrapped up, as it were, in a slight covering. Having passed through all its metamorphoses, and arrived at its proper maturity, it bursts through the surrounding folds, to assume the form it is in future to retain. This, however, is not solely effected by the efforts of the rising animal, the old ones very assiduously tearing with their teeth the covering which enwraps it; without which assistance, the aurelia would be unable to emancipate itself, as an ingenious naturalist has proved by repeated experiments. The old ones not only lend them their aid on this occasion, but actually know the precise time when their assistance is proper to be applied: and this, indeed, is the more necessary, as the young animal, if produced too soon, would infallibly perish on being exposed to the cool air; and, if too long detained in prison, would as certainly be suffocated.

The female having laid all her eggs, and the whole brood being thus produced, her labours, as well as those of the male, now cease; and her wings, which but a short time before were so actively employed, begin to disappear. What becomes of her when thus divested of one of her distinguishing ornaments, is not perfectly known; though she is usually seen in the cells for some weeks afterwards. The males, however, having no longer any employment at home, make use of their wings to fly away, and never more return. It is probable that, having performed their destined office, they perish with cold, or are devoured by the birds; many of which are extremely fond of this species of food. The labourers, in the mean time, having probably
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deposed their queen, and being deserted by the males, which served only to clog the community, prepare for the severity of winter, by sinking their retreats as deep in the earth as possible; and it is now found that the grains of corn, and other substances, with which they furnish their hill, are meant only as fences to repel the severity of the winter, and not as provisions to support them during it's continuance. It is a general observation, that almost every insect which lives a year after arriving at it's full growth, is obliged to pass four or five months without receiving any aliment, during which period it remains in a dormant state. This being certainly the case with regard to the European Ants, it would be absolutely useless for them to make provision against a season which they cannot enjoy: and, indeed, so far are they from feeding in winter on the fruits of their summer labours, that they are totally incapable of stirring during all the former season. Thus, what some authors have called a magazine of provisions, appears to be no more than a bulwark, which serves as a common retreat when the inclemency of the weather confines them to their lethargic state.

However, what has been said, with so much exaggeration, of the European Ants, is perhaps strictly true of those in the tropical regions: where they construct hills with amazing contrivance and regularity; laying up their provisions with much wisdom and foresight; and, probably remaining active the whole year, have œconomical regulations among themselves entirely unknown in European climates.

Reaumur, Gould, and Carre, who have made the most minute enquiries into the œconomy of Ants, in general agree with the relation we have given of these wonderful insects.

Mr. Gould observes, that every different colony of Ants is composed of insects of one particular species, over which a large female, to which he gives the title of queen, presides. The queen, he endeavours to prove, is the mother of the whole brood; and is distinguished from the rest by her superior magnitude, by the diversity of her colour, and by that reverential awe with which she is constantly treated by all her subjects. The colour of the queen sometimes differs in different colonies. Her head resembles that of the common Ant: she has likewise three lucid specks on her forehead, placed in a triangular form, which seem to be the eyes, and are of the same structure with those of the spider. The queen, as soon as she has laid a sufficient quantity of eggs, leaves them to the care of her labouring subjects, and withdraws to a separate apartment. Two or three yellow queens have sometimes been found in the same colony; and, of the red, there are seldom less than two regents. In this respect they both differ from the hill and small black Ants, which have only one.

From the most satisfactory experiments, this ingenious enquirer into nature has evinced, that the queen alone supplies every particular colony with it's inhabitants; and that she lays three different sorts of eggs, viz. the male, the female, and the neutral. These Ant-vermicles are very slow in their growth, and undergo various metamorphoses before they arrive at a state of full maturity.

Mr. Carre concurs with Mr. Gould in his general theory of Ants; and informs us, that these surprising insects swarm once a year; and that the young can build their habitations without the assistance of the old. At first, they seem solely attentive to

the construction of them; but no sooner are they finished, than some of the Ants proceed in search of provisions, which they lay up for their daily consumption, and for the support of the inactive part of their species, without any apparent foresight of an approaching inclement season.

After all, no insect can be more laborious than the Ant, nor more persevering; hence the very stones over which they pass and repass will often be visibly worn into tracks. They are so extremely fond of flesh, that they will not only feed on the bodies of may-bugs and beetles; but if a frog, lizard, bird, or serpent, be thrown in their way, they in a few days reduce it to a skeleton.

Ants have many enemies among the feathered tribes, particularly wood-peckers: but the Antlion is, of all others, the most formidable destroyer of these sedulous insects. The Ants found in the gardens and orchards appear to be a different species from those which inhabit the fields and woods, and are peculiarly inimical to the labours of the gardener. Several methods have been invented for their destruction: such as tallow, ashes, unflaked lime, foot, oil of aspic, ox's gall, saw-dust, pounded hogs dung, and sulphur; the fumes of which last article have been particularly recommended for their extirpation. The Ants, however, are not so prejudicial to hortulane productions as has generally been imagined; and therefore often suffer for the depredations of other insects.

Bontius informs us that, in the East Indies, Ants of a reddish hue are seen flying, which collect from flowers, trees, shrubs, and herbs, a substance of which gum-lac is ultimately composed. Subsequent authors, however, are not unanimous in supporting this assertion. Geoffery observes, that the name Gum is improperly applied to this substance, it being rather of a cereous nature. The most remarkable of this sort is stick-lac, brought over on the very branches whereon it is found, and which some have supposed to proceed from the trees themselves: but this conjecture is evidently erroneous; for on making an incision in the tree, nothing of that kind would flow from it. It is therefore most probably a kind of comb, partaking of the nature of that formed by the bees and other labouring insects; for, on it's parts being separated, different cells appear of a pretty uniform figure; and hence it is evident that the lac is nothing but a kind of wax which forms the component parts of the comb.

Aldrovandus reports, that in Brazil there are large winged Ants, which have both a very agreeable taste and smell; and their numbers are so immense, that they sometimes appear like a cloud. The German Ephemerides informs us that, on July 18, 1679, when the weather was intensely hot, but thick and cloudy, a flight of winged Ants was observed to proceed from the north-east towards the south-west; that the town of Posen, on the Danube, was filled with them; that such a vast number alighted in the market-place, that no one could stir without killing immense numbers of them; that their flight did not continue more than a quarter of an hour; and that, on falling, they lost their wings, and only crept about slowly: and that they resembled the common Ants, though of superior magnitude, and furnished with two transparent wings.

In Africa, and particularly in Guinea, the Ants, which are of three kinds, the red, the green, and the black, are very formidable and mischievous; and their sting produces extreme pain. They raise
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their hills, which are formed of a viscid kind of clay, to an amazing height, sometimes from six to twelve feet, tapering into a pyramidal form: the habitations are constructed with great art; and the cells are so numerous and regular, that more ingenuity and industry is scarcely perceptible in the formation of a honeycomb. These insects appear to be subject to the strictest regulations: for, on the slightest warning, they fall forth upon whatever object disturbs them; and, if they can find means to arrest their enemy, he is sure to experience no lenity. Sheep, fowls, and rats, are often destroyed by these insects, and their flesh stript off to the very bones.

Brazil contains a variety of Ants, some of which are nearly as destructive as the termites of Africa. Their colours are various, and beautiful; and several species are furnished with wings. In the oriental regions, likewise, the numbers of Ants are prodigious; some being remarkably large, and of a ruddy colour inclining to sable: they are extremely destructive to the fruits of the earth, as well as to domestic articles.

ANT HORSE. The largest species of Ant found in Great Britain, being twice the magnitude of the common sort. It is not only distinguished by its size, but by the blackness of its head, and the dusky iron-grey colour of its breast. Its legs are likewise an iron-grey; and the scale between the body and the breast is of an oval figure, pointed at the top, and undivided. The body is entirely brown, and composed of five segments. This species generally harbours in hollow trees, but in its ordinary habits differs very little from the rest of the genus.

ANT, RED. This insect, which is of inferior size to the common Ant, has a very small head, and a broad breast in proportion to its body. The scale is slightly dentated, and nearly circular; the legs are slender; the wings extremely fine, and of a brownish hue. It frequents dry pastures, and is often found on the leaves and stalks of the humbler plants.

ANT, BLACK. The black Ant is of a middle size between the horse and the red species. Its head is large in proportion to its body, and its breast somewhat depressed. The scale is of an oval shape, having its edges entire; and the legs are longer and more slender than in the other species. This Ant abounds in heaths and large dry plains.

ANT, AMERICAN. The common Ants of America are very large and voracious. They are furnished with two crooked teeth, which meet each other like nippers, and with which they cut the leaves of trees and other substances on which they subsist. A colony of these creatures sometimes strip a stately tree of its foliage in a single night, carrying away great part of the leaves to feed their young. When they arrive at full maturity, they shed their external coats, like flies on quitting their caterpillar state, and then become winged insects, under which form they deposit their eggs; excavating their retreats in the earth to a great depth, and constructing their nests with wonderful ingenuity. They carry on continual hostilities with every other species of insects; and when they rove abroad in bodies, which is always once a year, they penetrate every corner of the houses in their vicinity, and destroy whatever insects they contain.

ANT, AMERICAN VELVET. A very elegant insect about the size of the hornet, the body being beautifully marked with black and crimson spots of a vel-

vet gloss. The breast is extremely strong and hard, and will bear a considerable pressure without material injury. The sting of this species inflicts a wound which occasions extreme pain and inflammation.

ANT-EATER, or ANT-BEAR. A genus of animals of which there are several species: the distinguishing characteristics are, that the body is covered with hair, the mouth small, and the tongue, which is long and cylindric, calculated to supply the want of teeth.

Among the many animals which prey on ants, none are so destructive to that indefatigable race as those which go under the appellation of Ant-Bears or Ant-Eaters; and which, though considerably different in size and figure, agree in the peculiar length and slenderness of their snouts, their singular appetites, and the manner of seizing their prey.

These have been classed by Buffon into the larger tamandua, the smaller tamandua, and the Ant-Eater; we shall, however, follow the more accurate divisions of Pennant, who distinguishes this genus of animals into the Great, the Middle, the Striped, and the Lesser Ant-Eater.

In reviewing the history of this genus of animals, it is observable, that the snout is so disproportionate to the rest of the creature, that its length makes near a fourth part of the whole. Though the horse has as large a head as almost any other European animal, the Ant-Eater has one twice as long in proportion to its magnitude. The snout of this animal is almost round and cylindrical, extremely slender, and scarcely thicker near the eyes than at its extremity. The mouth is very small; the nostrils are close set; the eyes are little; and the neck is short. The tongue, which is long and slender, is generally doubled up in the mouth, and is the only instrument by means of which the animal finds a subsistence; as the whole of this tribe are entirely destitute of teeth, and derive their safety principally from the remoteness of their retreats. Indeed, if we carefully survey the various parts of the earth, we shall find that the most active, and most sprightly, as well as the most beneficial quadrupeds, have been placed contiguous to man, and have been either made subservient to his pleasures, or have maintained their independence by their vigilance, their cunning, or their strength; and it is only in the remotest solitudes that we are to look for the helpless, the deformed, and the monstrous births of nature. These wretched animals, being incapable of defending themselves either by their strength or cunning, easily become a prey to others which possess superior agility or fortitude; and, therefore, they retire for safety into the darkest forests, or the most deserted mountains. From this observation, it may naturally be supposed that the Ant-Eater, a creature so helpless and destitute that its legs are too short to accelerate its flight, and which possesses no natural arms for defence, is neither very numerous, nor often seen. It is principally found in the new world, though it is also sometimes discovered in the old; but, in whatever country the animal is met with, it always chuses the woods for its retreat, and conceals itself under the withered leaves. From this asylum it seldom ventures, as the industry of an hour supplies it with food to support existence for several days. The manner of its procuring its prey is one of the most singular which natural history furnishes. It lives, as its name implies, entirely

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on ants and insects of a similar nature, which are found in the greatest abundance throughout those countries which give birth to this animal. In these climates the ants live in large communities, and frequently raise their hills to a very considerable height. When this animal approaches them, it creeps slowly forward on it's belly, using every precaution to keep itself undiscovered till within a convenient distance of the place where it intends to make it's banquet; then stretching itself lengthwise on the ground, it thrusts forth it's round red tongue, which is often two feet long, across the path of these industrious insects, suffering it to remain motionless for several minutes together. The ants of these regions, some of which are half an inch long, considering it only as a piece of flesh accidentally thrown in their way, swarm upon it in great numbers, but are immediately entangled; the tongue of the Ant-Eater being covered with a slimy fluid like bird-lime. When the Ant-Eater perceives it's tongue covered with a sufficient number, it instantly draws it in, and devours them: and continues to act in the same manner till it's appetite is fully gratified; when it again retires to it's hiding-place, where it remains in a state of inactivity as long as hunger will permit.

Such is the luxurious life of the Ant-Eater; a creature, of all others, apparently the most helpless. However, it finds safety from it's enemies in the privacy of it's retreat; and, in some neighbouring ant-hill, an ample supply of all it's wants. As it's chief aim is to avoid it's pursuers, it is seldom discovered: but, when driven to an extremity, though destitute of teeth, it will fight with it's claws; and it has often been known to oppose the dog, and even the jaguar, with success. It throws itself on it's back, fastens on it's enemy with all it's claws, and adheres with such strength and perseverance, that even after death it does not relinquish it's hold for a considerable time.

ANT-EATER, GREAT. This animal has a long slender nose, small black eyes, and a round short mouth. The tongue, which is about thirty inches long, lies double in the mouth. The legs are extremely slender, having four toes on the fore-feet, and five on the hind; and the two middle claws on the fore-feet are very large, strong, and hooked. The hair on the upper part of the body is black mixed with grey, and about six inches long; a black line, bounded above with white, extending from the neck, across the shoulders, to the sides. The fore-legs are whitish, and marked above the feet with a white spot: the tail, which is about a foot in length, is covered with very long coarse black hair. That beautiful specimen in Sir Ashton Lever's Museum, which is superior to any ever yet described, is seven feet four inches long; it's tail is two feet nine inches; and it's height is exactly two feet.

This species of the Great Ant-Eater inhabits Brazil and Guiana; it moves very slowly, but is capable of swimming across the largest rivers. It is, however, so fearful of rain, that when exposed to a shower it uses it's long bushy tail for a covering. This animal, as well as every species of ant-eaters, brings forth but a single young one at a time; and, on these occasions, the female is so extremely fierce, that nothing which gets within her fore-feet is able to extricate itself. Even the American panther is often unequal to the combat; for should the Great Ant-Eater find an opportunity of embracing it, she fixes her talons so deeply in it's sides, that she sel-

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dom quits her hold till after the death of her adversary. The Great Ant-Eater sleeps by day, and preys by night. It's flesh, which has a strong disagreeable taste, is esteemed excellent food by the Indians.

ANT-EATER, MIDDLE-SIZED. This, like the other species of ant-eaters, has a long slender nose, somewhat incurvated; a little mouth; and small black eyes. The ears are also small and upright; it has four claws on each of the fore-feet, and five on those behind. The hair is of a pale yellow colour, hard and shining; and a black line crosses the shoulders on each side of the neck, and meets at the extremity of the back. The tail, which is ten inches long, is taper, and covered with long hair; and the length of the body is nineteen inches. It inhabits Brazil and Guiana; and, in it's manners and instinct, exactly corresponds with the Great Ant-Eater. It is, however, capable of climbing trees, fastening itself to the branches by it's tail.

ANT-EATER, STRIPED. This is an uncertain species; but is generally described thus: the nose is long and tapering; the upper mandible is considerably longer than the lower; the eyes are extremely minute; the ears are round and short; the fore-feet are furnished with five toes; the tail is covered with long hair of an equal length; and the body is marked with longitudinal broad black stripes, the rest being of a tawny colour. The tail, which is annulated, is likewise tawny; and the belly is of a dirty white. The length of this species hardly exceeds one foot; and the tail is more than half the length of the whole body. Guiana appears to be it's native place, where it's flesh is esteemed delicious food.

ANT-EATER, LESSER. The Lesser Ant-Eater has a conical nose, with a downward incurvation; the ears are small, and almost obscured by the face; the head, limbs, and body, with the upper part of the sides and tail, are clothed with long soft silky hair, or rather wool, of a yellowish colour, inclining to brown. It has two hooked claws on the fore-feet, the exterior of which is considerably the largest; and it has four claws on the hind-feet. This animal measures about seven inches and a half in length, exclusive of the tail, which is upwards of eight inches long, thick at the base, partly naked, and tapering to a point. It also inhabits Guiana, and possesses the power of climbing trees in search of a species of ants which affix their nests to the branches.

Another species of the Lesser Ant-Eater has been discovered at the Cape of Good Hope, and in the Isle of Ceylon; having four toes on the fore-feet, and pendulous ears, which seem to distinguish it from other kinds. Kolben, in his History of the Cape, informs us, that they are toothless; that if they fasten their claws in the ground, no man possesses sufficient strength to disengage them; and that they protrude their clammy tongues, which they insert into the ants nest, and draw it into their mouths, together with the insects which adhere to it. Mr. Strachan, in his Account of Ceylon, describes an animal to which the natives give the name of talgoi, or ant-bear, after the same manner. It is therefore an unquestionable fact, that these animals, though more rare, exist in the old world as well as in the new.

ANT-LION, or FORMICA LEO. If we consider this insect in it's different stages of existence, we shall find it equally wonderful in all. In it's reptile state, however, it is essentially different from

all others; and, in that state, it will be amusing to pursue its history. The Ant-Lion, previous to its becoming an inhabitant of the air, is of the size of a common wood-louse, but somewhat broader. It has a pretty long head; and a roundish body, which narrows imperceptibly towards the tail. The colour is a dirty grey, speckled with black; and the body is composed of several flat rings, which fall over one another. It is furnished with six feet, four of which are fixed to the breast, and two to the neck. The head is small and flat; and, in the front, there are two little smooth horns, or feelers, about a quarter of an inch long, which are hard, and incurvated at the ends. At the basis of the feelers are two black quick eyes, by which it can discern the minutest objects. To this form, so contemptibly minute, and so ill provided for the purposes of rapacity, this animal unites the most ravenous appetite. But, to mark its imbecillity still more; as other animals have wings or feet, to enable them to approach their prey, the Ant-Lion is totally destitute of whatever assistance might be derived from either. It has, indeed, a kind of legs; but these only allowing a retrograde motion, it is absolutely impossible for the Ant-Lion to move forward. Thus, famished and rapacious as it ever appears, its prey must accidentally fall within the ambushade provided for it, or the insidious assassin would inevitably be starved to death. Nature, however, bountiful to all her productions, though she has denied strength and swiftness to this insect, has endued it with cunning; so that no animal fares more luxuriously, without ever moving from its retreat. For this purpose it selects a dry, sandy soil, near the foot of a wall, or under some convenient shelter, in order to carry on its machinations secure from the rain. Instinct, indeed, seems to point out such a spot as the most proper habitation for it, since a heavy damp earth would entirely defeat its exertions. When it begins its labour, by digging a hole for the purpose of ensnaring its prey, it bends the hinder part of its body, which is pointed; and in this position works backward, forming, after several attempts, a circular furrow, which serves to mark out the size of its intended hole. Within this first furrow it digs a second; then a third; and afterwards others, which are always of less dimensions than the preceding. These preliminary operations being finished, it begins to deepen the cavity, sinking lower and lower into the sand, which it throws with its horns or feelers towards the margin; till, by repeated efforts, it is formed into a circle round the edge of the pit. This hole always represents a perfect circle; and the pit itself resembles the inside of an inverted funnel. When the Ant-Lion is newly hatched, the first pit it sinks is of very small dimensions; but, as the insect grows larger, it increases the size of its retreat; which is destined, like a pit-fall, to entrap its prey, and is generally about two inches deep, and nearly as much in diameter. This being effected, the insidious Ant-Lion lies in ambush, concealing itself under the sand in such a manner that its two horns encircle the bottom of the pit, the exterior part of which is composed of the most loose and crumbling materials; so that it is almost impossible for any insects which have once fallen into it, to creep out again. Conscious of the success of its stratagem, the Ant-Lion remains in patient expectation of its prey, and ready to avail itself of any accident which may throw some unsuspecting little animal into its power. Should an ant, a wood-louse, or a caterpil-

lar, approach too near the edge of the precipice, the sand instantly gives way, and the unfortunate insect tumbles to the bottom of the pit, where it inevitably meets destruction. The fall of a single grain of sand gives notice to the wakeful murderer at the bottom of the cave; which never fails to fall forth in expectation of its prey. Sometimes, however, the ant or wood-louse is too nimble for its pursuer; and recovers the margin of the pit-fall before the Ant-Lion can lay hold of it: in which case, the animal has another contrivance, more extraordinary than the former; for, by means of its broad head and feelers, it possesses the power of throwing up a shower of sand, which falls on the struggling captive with tremendous weight, and precipitates it to the bottom. When the insect is thus overpowered, no efforts of its own can possibly release it: the Ant-Lion instantly seizes it with its hollow feelers; and, darting them both into its body, sucks out the juices with amazing rapacity. The prey of the Ant-Lion being thus reduced to a skeleton, it next proceeds to remove the dead carcase from its cell, lest it should alarm other insects, and prevent their near approach; taking up, therefore, the wasted trunk with its feelers, and throwing it with prodigious strength at least six inches from the verge of its den, it sets about repairing the injuries sustained in the recent contest. Nothing can abate its industry, or check its rapacity: patient, vigilant, and assiduous, it will continue on the watch for more than a month, expecting the approach of its prey; and, should the quantity exceed the calls of nature, the little voracious creature will quit the insect it has recently killed, and leave it half consumed, in order to attack any other which may happen to come within its reach. Like savage birds and beasts of prey in general, which are capable of enduring abstinence longer than the gentler tribes, it supports hunger for a period really astonishing. La Hire, of the Academy of Paris, observed, near a century ago, that the Ant-Lion could fast for seven months together; and to him we are indebted for the first notice of this surprising insect, which was soon afterwards so well described by Vallisnieri and Poupert.

When the Ant-Lion has spent about twenty months, and sometimes near two years, in the state last described, it assumes another form, and forgets its rapacious appetites, but not its industry. It no longer digs pits to ensnare the unwary; but furrows up the sand all round in an irregular manner, testifying those workings, and violent agitations, which most insects exhibit previous to their metamorphoses. These animals are produced in autumn; and, at the end of winter, they are found of all sizes: from which circumstance, it appears that they do not uniformly arrive at maturity within the same space of time, but experience their transformation at different ages. When this change approaches, if the insect finds its little cell convenient, it remains satisfied: but if it is obliged to remove, it entirely conceals itself under the sand it has raised up, where it spins a thread, after the manner of the spider; which, being formed of a glutinous substance, and humid from the moisture of its body, adheres to the little particles of sand among which it is spun, and the insect rolls up the whole into a ball, itself forming the centre. This ball is about half an inch in diameter, and the insect preserves an apartment within sufficiently capacious for all its motions. The external surface

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is composed of sand and silk blended; the internal of silk only, of a fine pearl colour, extremely delicate and beautiful. But though the work is so curious within, the outside has only the appearance of a plain lump of sand; and thus escapes the notice of such other voracious animals as might be tempted to disturb the inclosed guest. In this inactive state the insect continues six weeks or two months, gradually losing it's eyes, it's feelers, it's feet, and it's skin; all which are left in the interior apartment. The insect then appears almost in it's winged state, a thin skin only enfolding the wings, which seem to be merely a thin liquid dried on the outside. The little animal, however, being yet too delicate and tender to venture from it's retreat, still continues inclosed for a short time; but, at length, it's members having acquired the necessary consistence and vigour, it tears open it's prison, and breaks through the external wall. To effect this, it has two teeth, like those of grasshoppers, with which it eats through and enlarges the aperture, till it finds it sufficiently capacious to admit it's escape. The body, which is turned like a screw, occupies only a quarter of an inch in length; while the wings, which seem confined within the smallest limits, soon begin to unfold, and now appear longer than the whole body. In short, it becomes a large and beautiful animal of the libellula species, called the Ant-Eater Fly.

ANT-EATER FLY. This insect is large, remarkably swift in all it's motions, and fierce and destructive in a degree not inferior to that of the reptile from which it derives it's origin. It frequents the meadows and bushes in France and Italy during the latter part of summer, and is so exceedingly rapacious, that it seizes on every thing which comes in it's way. The head is of a chestnut colour; the eyes are large and green; and the antlers, which are composed of twenty-four joints, growing larger to the tip, are of a deep brown. The feelers, of which there are four in number, are long and dusky; the jaws are yellow, hard, and sharp; and the two tusks are brown. The trunk is of a greyish brown, with a gilt variegation; the scutcheon is blueish; the body, which is inelegant, is of a pearly deep grey; the lines, or rings, are black; the air-holes are fringed round with brown; and the legs are short, compact, and ruddy, with long dark hairs. The wings are grey; each of the superior ones being marked with four spots of a dusky brown, and there are likewise two on each of the inferior. The nippers at the tail are corneous and chestnut-coloured.

ANTACÆUS. A term applied by Strabo to express the ichthyocolla piscis, or the ingslafs-fish; and afterwards used by Johnson and others, not only to signify this fish, but the common sturgeon likewise.

ANTALIUM. A small sea shell of a tubular form, whence it is also denominated tubulus marinus. The Antalium, sometimes written Antale, is about an inch and a half in length, being of the thickness of a large quill at one extremity, and of a small one at the other. This shell, which is fluted from end to end, is of a greenish white colour, and is found as well on rocks as at the bottom of the sea. It possesses the qualities of an alkali; and was anciently held to be of considerable medicinal use.

The Antalium bears a strong affinity, in it's origin, conformation, and uses, to the dentalium.

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ANTELOPE, or GAZELL. A species of animals which can neither be referred to the goat nor the deer race, though partaking of the nature of both.

The distinguishing characters of this tribe of animals (of which some naturalists enumerate more than forty species, though Buffon makes them only twelve) are these: their horns are differently constructed from those of the deer and goat tribe, being annulated, or ringed round, at the same time that there are longitudinal depressions running from the base to the apex. They have bunches of hair on their fore-legs; a streak of black, red, or brown, running along the inferior parts of their sides; and three streaks of whitish hair on the internal sides of their ears. These are general characters; but, besides these, there are several others which they are commonly found to possess, and which are obvious to every beholder.

Like the goat, and unlike the deer, they never shed their horns, have a gall bladder, and delight more in feeding on shrubs than grass. On the other hand, they are like the roe-buck in size, as well as in delicacy of conformation; they have deep pits under the eyes, like that animal; and resemble it in the nature and colour of their hair, as well as the bunches on their legs, which only differ in being on the fore-legs of the Antelope and on the hind-legs of the roe-buck. They seem, therefore, to be of a middle nature; an intermediate link between the goat and the deer; whence it is difficult to pronounce where the goat ends and the deer begins.

Most of these animals inhabit the torrid regions; those parts, at least, of the temperate zone which lie so near the tropics as to form a doubtful climate. It is, however, remarkable that, notwithstanding the warmth of South America is well suited to their nature, not a single species of Antelope has ever been discovered in any part of the new world. Their native countries seem, therefore, to be Asia and Africa; where they multiply prodigiously, and their species are very numerous. Almost every species of the Antelope have the following general agreements: they are all animals of an active and elegant make, of restless and timid dispositions, extremely vigilant, of great vivacity, and remarkably swift and nimble.

The eyes of the Antelope are so extremely brilliant, and at the same time of such a mild aspect, that the oriental poets compare the eyes of their mistresses to those of this quadruped. Nor can it appear strange that such a comparison should be reckoned the height of gallantry among the eastern nations; when we reflect that the Greeks, those masters of literature, taste, and elegance, thought it no inelegant compliment to resemble the eyes of a beautiful woman to those of a cow.

The Antelope is, in general, more delicate and finely limbed than the roe-buck; it's hair is as short, but it is finer and more glossy. It's hind-legs, like those of the hare, are longer than the fore ones, which not only give additional swiftness, but greater security, in ascending and descending precipices; a practice in which it greatly delights. It's swiftness is equal, if not superior, to that of the roe; though the latter bounds forward, while the Antelope runs along in one uninterrupted course. The greatest number of species are brown on the back, and white under the belly, with a black stripe separating those colours. The tail is of various

rious lengths, but always covered with pretty long hair; and the ears, which are beautiful and well placed, terminate in a point. The hoof is cloven, like that of the sheep; and the horns are perennial, those of the female being considerably smaller than the male's. Indeed, on comparing the Antelopes one with another, we find very inconsiderable variations between them. The turn or magnitude of the horns, the different spots in the skin, or diversities of size, constitute the principal marks by which the several species are distinguished; for their mode of living, habits, and peculiar swiftness, fall under one general description.

Antelopes being inhabitants of the more sunny climes, greatly contribute to add beauty to those forests which are perpetually green. They are often seen feeding in herds on the sides of the mountains, or the skirts of the woods, and fly all together on the slightest intimation of danger. Indeed, they run with such amazing swiftness, and are so extremely timid, that dogs or men usually pursue them in vain. They traverse, with safety and facility, those precipices which would be wholly impassable by every other quadruped except the goat; nor can any animals, not of the winged tribe, by any means exceed them in swiftness. On this account, they are commonly pursued by falcons; and that curious method of hunting forms one of the most favourite amusements among the grandees of the east.

The Arabians, Persians, and Turks, carefully breed up, and train for this purpose, that species of hawk, which we call the gentle falcon. The hunter sallies forth on horseback, among the woods and mountains, with one of these falcons perched on his right-hand, preserving the most profound silence; and the dogs, with which he is also attended, are taught to hang behind; while the attendants, mounted on fleet couriers, look out for game. When they perceive an Antelope at a distance, they direct the falcon's eye to the spot, and animate it to pursue. It immediately flies with incredible swiftness to the animal; which, apprized of its danger, endeavours to escape, but generally without effect. The falcon, on overtaking its prey, fixes one talon into the animal's cheek, and the other into its throat: on this the wounded Antelope increases its speed; but the falcon usually makes its attack with such success as to prevent the animal's running far, clinging with the most resolute perseverance to its prey, nor ever quitting it till it falls. The hunters then approach, and at once seizing the Antelope, and disengaging the falcon, reward the latter with the blood of the spoil. They also apply young falcons to the throat of the dead animal, for the purpose of early accustoming them to fix on that particular place; since, were the falcon to attack any other part of the Antelope, either on its back or haunches, the animal would easily escape among the mountains, and thus both would be irretrievably lost.

Nor is this the only method by which these fleet and wary animals are subdued. The ounce, a carnivorous and savage creature, is trained for this purpose, to sit on horseback behind the hunter; where it remains with the utmost composure till he gets sight of the prey. It then exerts all its arts, and all its fierceness; not darting precipitately on the Antelope, but turning and winding about till it comes within the proper distance; when, swift as lightning, it darts on the incautious animal, kills it instantaneously, and riots on the blood.

But if the ounce happens to miss its aim, it returns to its place without attempting an ineffectual pursuit, and seems ashamed of the failure of its artifice.

There is still another way of taking the Antelope; but which seems neither so certain, nor so amusing, as either of the former. An Antelope being bred up tame, is taught to join its own kind the moment it sees them. When, therefore, the hunter discovers a herd of Antelopes together, he contrives to fix a noose round the horns of the domestic animal, so that if any of the wild ones merely touch it with theirs, they are sure to be entangled; and, thus prepared, he sends it among them. The tame animal no sooner approaches the wild herd, than the males sally forth to oppose it; and, butting with their horns, are caught in the noose. In this condition they struggle together till both fall to the ground: when the hunter comes up; and, disengaging the tame animal, kills or secures the other.

But notwithstanding all the artifice of man, and the ingenuity he displays in these several modes of destruction, the Antelope is extremely difficult to be caught. Continually exposed to alarms from beasts of prey as well as man, and seemingly conscious of the number and the artifice of its enemies, it places its principal dependence for protection on the nature of its situation, and chiefly resides in the most solitary and inaccessible places.

ANTELOPE, COMMON. The Common Antelope is somewhat inferior in size to the fallow-deer, but resembles it in all the proportions of its body. It is furnished with upright horns spirally twisted, and encircled almost to the top with prominent rings; the horns being about sixteen inches long, and twelve inches distant from point to point. The colour of this animal is brown mixed with red, and dusky; its belly and the insides of its thighs are white; and it has a shortish tail, black above, and white beneath. The female of this species is destitute of horns.

This animal is a native of Barbary. Its horns, before they are separated from the skull, are not much unlike the figure of the ancient lyre; and, indeed, it appears, from several antique gems, that the sides of that instrument were frequently made of the horns of animals.

ANTELOPE, BLUE. The colour of this animal, while it ranges its native woods, is a fine blue; but, after death, it changes to a blueish grey mixed with white. The horns are twenty inches long, sharp pointed, taper, and bending in an arch backwards; they are marked with twenty prominent rings, but become perfectly smooth towards the points. This species, which is somewhat longer than the common buck, is covered with long hair, that on the belly being white. The tail is seven inches long; and, beneath each eye there is a large white mark. From the length of its hair, and the construction of its horns, this animal seems to connect the genus with that of the goat. It inhabits the interior parts of Africa; and is called by the Dutch at the Cape of Good Hope, the blawme bock, or blue goat.

ANTELOPE, ÆGYPTIAN. The horns of this animal are straight, slender, and annulated. They are near three feet long; and the space between their tips is fourteen inches. They have a black triangular spot at the base, bounded on each side with white; and, in the centre of the face, there is a similar spot, besides two others which fall from the eyes

eyes to the throat, forming a junction with that in the face by a lateral band of the same colour. A black line extends from the neck to the loins, composed of hairs longer than the rest; the neck, back, and sides, are of a dark grey; and the breast and belly are a lively white. The tail, which is about two feet long, is terminated with long black hair. This species is about the size of a buck; and seems most attached to the plains; inhabiting Egypt, the Cape of Good Hope, Persia, Syria, Arabia, and India. The Dutch at the Cape distinguish it by the name of the chamoise.

ANTELOPE, ALGAZEL. This antelope is described by Buffon to be of a red colour, having the breast and buttocks white: the horns are long, slender, and upright, bending internally towards the top; and sometimes they are extremely full of annulations, though on others of the same species there are very few. This beautiful creature inhabits Bengal, Lybia, Egypt, and some other tropical countries. It runs with amazing agility up the steepest precipices, but in the plains its pace seems considerably retarded. It is very difficult to be caught; but when once accustomed to a domestic state, it becomes remarkably tractable. Some naturalists suppose this to be the antelope leucoryx of Oppian, of which two drawings are preserved in the British Museum; but there are certainly some material variations, though probably not sufficient to constitute a distinct species.

ANTELOPE, BEZOAR OF PASEN. This animal, in its general figure and conformation, resembles those antelopes already described, except that there is a small variation in its horns; and that it has several qualities and dispositions peculiar to itself. It never ventures in the plains, but inhabits the most inhospitable and rocky mountains; particularly those of Persia: it is, however, not unfrequently found in Egypt and Arabia. This antelope is one of those animals famous for producing the Bezoar, a concretion formed in the intestines or stomach, which was once held in the highest reputation for its fancied medicinal virtues. This stone is generally found from the size of an acorn to that of a pigeon's egg; its value increasing in proportion to its magnitude. It was formerly sold at a most extravagant price: but the general diffusion of science (over the European countries, at least) has taught mankind to investigate its real qualities; which appearing to have been greatly magnified by credulity, the value of Bezoar is of course now much decreased. It is sometimes of a blood colour, and at others of a pale yellow, and all the intermediate shades. Its surface is generally smooth and glossy; and, on being broke, it emits a fragrant smell like ambergris, which probably originates from the aromatic food on which the animal subsists. The use of Bezoar, however, is now almost universally exploded by judicious physicians; though it still retains its supposed value in those regions where the knowledge of nature is not far advanced. Experience, indeed, has not only convinced mankind in general that few cures are to be ascribed to this substance; but, on the contrary, that it even proves fatal to the animal from which it is produced. These kind of concretions, however, do not appear to be peculiar to this creature alone; they are found in almost every tribe of animals, the carnivorous kinds excepted; and evidently arise from the practice of licking off their hair, which grows into balls, in the intestines, of the size and nature already described.

ANTELOPE, HARNASSED. This species of antelope is a native of Senegal, principally frequenting the plains and woods. Its colour is a deep tawny; and its sides are most curiously marked with two transverse bands of white intersected by two others from the back to the belly. On the rump are three white lines pointing downwards on each side; and its thighs are spotted with white. The tail is only ten inches long, and covered with long rough hairs. The ears are broad; and the horns, which are straight, are nine inches long, pointing backwards, with two spiral ribs. The Dutch at the Cape of Good Hope give this animal the title of the bonte bock, or spotted goat.

ANTELOPE, AFRICAN. This animal, which is about eighteen inches high, is of a most elegant and beautiful form. The horns are straight, slender, sharp-pointed, slightly annulated at the base, and about three inches long. In the middle of the head, between the horns, is an upright hairy tuft; and on both sides, between the ears and the nose, are deep cavities, containing a yellow, oily fluid, which coagulates into a strong-scented substance, somewhat between the musk and the civet. This being collected, the liquid again flows out and coagulates. Some have supposed this to be the tears of the animal; but as the cavities containing the fluid have no communication with the eyes, we cannot subscribe to this opinion.

The colour of the neck and body of this animal is brown, with a slight tinge of yellow; the belly is white; and the tail, which is black above, and white beneath, is short. The females are distinguished by being destitute of horns.

ANTELOPE, INDIAN. This animal is about five feet high, thick-bodied, and strongly made; but possessed of slender legs in proportion to its magnitude. The horns are thick and straight, marked with two prominent spiral ribs, for a considerable way from the base, but smooth towards the points. The head is of a reddish hue; the forehead is broad; and the nose is pointed. On the forehead grows a line of long loose hairs; and, on the inferior part of the dewlap, a considerable tuft of dusky hair. A short black mane extends from the head quite to the tail. The rest of the body is of a blueish grey colour, slightly tinged with red. The tail is short, covered with short ash-coloured hair, and terminated by a large tuft of long black hairs. The females of this species (to which the Hottentots give the name of emphosphos) have horns like those of the males.

The Indian Antelope also inhabits the southern parts of Africa, and appears to have a strong predilection for the mountainous parts of that country. Being naturally fat and fleshy, it is slow-paced, when compared with many of the antelope race; and, consequently, falls an easier prey to the hunters, who greatly esteem its flesh.

ANTELOPE, ROYAL. The Royal Antelope, called also the Chevrotin, or Little Guinea Deer, is perhaps the smallest and most beautiful of all cloven-footed quadrupeds. Its legs, when thickest, are not much larger than a goose-quill. It is about nine inches in height, and fourteen in length from the point of the nose to the insertion of the tail. Its shape is delicate beyond description; and it appears like a stag in miniature, except that the horns of the male (for the female has none) are hollow, and annulated like those of the antelope tribe. It has broad ears; and, having two canine teeth in the upper-jaw, differs in that

respect from all other animals of the goat and deer kind, and therefore ought systematically to form a distinct genus of itself. The colour of this animal, which is commonly a fine yellow, (except the neck and belly, which are white) is no less beautiful than its figure is pleasing. Its hair is extremely short, and possesses a charming gloss.

The Royal Antelope is a native of Senegal, and the hottest climates of Africa. It is remarkably nimble for its size, bounding over a wall twelve feet high with the greatest facility. Its swiftness, however, does not always protect it; the negroes frequently overtake it in the pursuit, and kill it with their clubs. When domesticated, which is easily effected, it becomes entertaining and familiar; but such is the extreme delicacy of its constitution, that it cannot endure transportation from its native soil.

ANTELOPE, INDOSTAN. This animal is a native of the most distant parts of the Mogul's dominions. It chews the cud; lies down and rises after the manner of camels; and makes a kind of croaking noise nearly resembling that of a deer in rutting time. This antelope grows to about four feet in height, and has a large lump on its shoulders somewhat resembling that of the Indian ox. The horns are seven inches long, projecting forward; and the neck, which is peculiarly strong, has likewise a bend forwards like that of the camel, on the top of which is a short mane. Its posteriors resemble those of an ass; and the tail, which is about twenty-two inches long, is terminated with long hairs. Its legs are slender; and, on the lower part of the breast, the skin hangs loose like that of a cow. Its hair is short, smooth, and commonly of a light ash-colour, though dusky in some parts; the lower part of the breast, and under the tail, is white; and on the forehead there is a black spot in the form of a diamond.

ANTELOPE, WHITE-FOOTED. This animal measures upwards of four feet to the top of the shoulders, and nearly the same in length from the bottom of the neck to the insertion of the tail. Its horns, which are short, project a little forward; and its ears are large, and marked with two black stripes. It has a short black mane, extending half way down its back; and a tuft of long hairs on the fore-part of its neck; above which is a large white spot; another on the chest between the fore-legs; a third on each fore-foot; and two on each hind-foot. Its tail is pretty long, and tufted with black hairs. The colour of the male is a dark grey; but that of the female a pale brown. The female is destitute of horns, but has a mane, tuft, and striped ears, like the male. This animal inhabits the interior parts of Indostan, and is sometimes brought down to the British settlements by the natives, as a great curiosity. Some of the White-footed Antelopes have been imported into England; where, notwithstanding the surprising difference of climate, they have been known to breed and thrive surprisingly. During the reign of Aurengezebe, these beautiful creatures were much esteemed for the diversion they afforded in hunting. According to Bernier, that warlike prince, when on a journey, used to inclose them within nets; which, being gradually drawn within narrow limits, the king and his grantees entered the circle, and dispatched them with spears and other weapons: and this, indeed, is a very common method of destroying wild beasts in many oriental countries.

The White-Footed Antelopes, when habituated

to a domestic life, are in general extremely docile, and express a peculiar affection for those who feed them: sometimes, however, they are very vicious and formidable. In their natural state, the males fight with the utmost ferocity. They drop on their knees at a distance from each other, and in that attitude commence their approaches; springing forward, when sufficiently near, with incredible animosity.

ANTELOPE, RED. The Red Antelope is about four feet long, and two feet three inches high. The horns are about five inches and a half in length, and slightly annulated at the base; the ears are considerably longer than the horns; and the hair, which is stiff and glossy, is in every part of a reddish colour, but palest on the chest. This species inhabits Senegal and the Cape of Good Hope, where it greatly abounds, and is esteemed very excellent food.

ANTELOPE, SWIFT. The length of this animal is about three feet ten inches; and the height two feet ten inches. The horns are round, eight inches long, and reverting at their extremities. This species of antelope varies in colour, but is in general tawny: the lower part of the sides, the belly, the rump, and the thighs, are white; and it has also a white spot on the fore part of the neck. It is a native of Senegal, and is reckoned the swiftest of this race of animals, as its name imports.

ANTELOPE, STRIPED. The length of this animal is nine feet; and its height four. The body is long and slender; and the legs are peculiarly delicate and fine. The face is brown, marked with two white lines proceeding from the corner of each eye, and uniting above the nose. The colour of the body is generally reddish, with an admixture of grey. It has a white stripe along the top of the back, extending from the shoulders to the tail; and from this seven others branch out, four pointing towards the thighs, and three towards the belly. The breast and belly are grey; on the upper part of the neck is a short mane; and there are a few hairs hanging down from the throat to the breast: the situation, number, and direction, however, of these stripes, from which this creature receives its name, have been observed to vary. The tail is about two feet long, brown above, white beneath, and black at the extremity. The Striped Antelope is said to possess uncommon agility; and the height of its leaps is really beyond conception. It is a native of the country of the Caffres, where it is called coedoes.

ANTELOPE, FLAT-HORNED. This animal, the kevel of Buffon, is the size of a roe-buck, having very curious horns, flattened on the sides, and containing from twelve to fourteen rings. The colour of the superior part of the body is a reddish brown; the inferior part, and buttocks, are white; along the sides the two colours are divided from one another by a strong dusky line; and on each knee is a tuft of hair. This species is gregarious, and inhabits Senegal. It is easily domesticated, and its flesh is agreeable.

ANTELOPE, WHITE-FACED. The White-Faced Antelope is superior in size to the fallow-deer. The length of the animal is upwards of five feet, and the height, to the summit of the shoulders, is three feet. Its horns, which are similar to those of the flat-horned antelope, are sixteen inches long, five between tip and tip; annulated in the male, but smooth in the female. Its face, and the space between the horns, are both of a pure lively white; the cheeks and neck are of a fine bright bay; the back is cinereous, blended with red, having a dark stripe

stripe along the middle; the sides, flanks, and shoulders, are of a deep brown, a broad band of a darker colour dividing them from the belly, which is wholly white, as well as the rump, and a small space above the tail. The tail itself, which is about seven inches long, is covered with coarse black hairs, extending four inches beyond the stump. This species of antelope inhabits the countries north of the Cape of Good Hope; and a beautiful specimen is preserved in Sir Ashton Lever's Museum.

ANTELOPE, CHINESE. The length of this animal is about four feet and a half. It's horns are nine inches long, of an opaque yellow colour, reclining backwards, with their points bending towards one another, and annulated almost to their extremities. The head is rather clumsy; the nose is obtuse; the ears are small and sharp-pointed; and on the middle of the neck grows a considerable protuberance, occasioned by the peculiar structure of the wind-pipe. On the approach of winter, the hair of this animal grows along, rough, and hoary; so that at a distance it appears almost white; but, towards the beginning of May, it exchanges it's coat for another, which is short, thick, and of a tawny hue. These antelopes are very numerous in Chinese Tartary, and on the frontiers of China and Thibet: they also inhabit the borders of India; and thousands of them herd together near the Lake Baikal. They are prodigiously swift; and, when alarmed, bound near twenty yards with the greatest facility. They are naturally shy and timid, frequenting dry and rocky plains; and are so very fearful of water, that even the most imminent danger cannot compel them to enter that element. During the winter season, they herd in great numbers, but separate again on the approach of spring. The Tartars hunt them with the utmost eagerness, and esteem their flesh very delicious food. Their horns form a considerable article of commerce, and are in high estimation among the Chinese. Naturalists seem to doubt whether they have any particular voice, as they seldom emit any which can be regarded as natural. When young, they are easily tamed.

ANTELOPE, SPRINGING. The Springing Antelope is a very elegant species, rather less than the roe-buck. It's horns are slender, annulated half their length, and twisted spirally; the ears are very long and dusky; and the tail depends to the first joint of the leg. The face, cheeks, throat, and part of the under side of the neck, are white, with a dusky line passing from the base of each horn, beyond the eyes, to the extremity of the mouth. The upper side of the neck, and part of the lower, as well as the back, sides, and exterior parts of the limbs, are of a pale yellowish brown; the chest, belly, and interior parts of the limbs, are white; and the sides and belly are divided by a broad chefnut band, which runs down part of the shoulders. The upper part of the tail is white, and the lower black; the buttocks are white; and from the tail, half way up the back, there is a white stripe, which the animal possesses the power of contracting or expanding at pleasure. This species of antelope inhabits the Cape of Good Hope, and receives it's epithet from the prodigious springs it takes on perceiving any of the human form. It migrates annually from the interior countries, and takes up it's residence in the vicinity of the Cape for two or three months, and then returns in troops of many thousands, attended by numbers of beasts of prey, which make dreadful destruction among them. These migrations are

probably owing to a deficiency of pasture, occasioned by the excessive droughts to which some latitudes are subject; particularly that of Terra del Natal, where sometimes a single drop of rain does not fall during the space of two or three years.

ANTELOPE, SCYTHIAN. The height of this animal is about two feet and a half, the length four feet nine inches, and the tail is about three inches long. It's head resembles that of a sheep; it's nose is very large, arched, and marked the whole length with a small line; and the cutting-teeth are placed so loose in their sockets, that they move with the smallest touch. The horns of the male, which are of a pale colour, and the greatest part of them almost transparent, are about a foot long, bending a little in the middle, the points inclining inwards, the ends smooth, and the rest annulated. The females are destitute of horns, and extremely timid. During the summer months, the hair of this species is very short, and of a greyish colour, with an admixture of yellow; the space above the cheeks is whitish; the forehead and crown are hoary, and covered with long hairs; and the under-side of the neck and body are white: but, in winter, the whole covering is long, rough, and hoary. These animals inhabit the Arabian deserts; and they are likewise found in Poland, Moldavia, and in the vicinity of the Caspian Sea. They seem to have a peculiar predilection for the most dreary sterile spots, where the nature of their food gives their flesh a flavour highly disgusting to many palates. The females generally bring forth their young in May, and only one at a time; notwithstanding which, the numbers of these animals are prodigious. The young of this species are covered with a soft fleece, curled and waved like new-dropped lambs. These animals are migratory; and, in the rutting season, which is late in autumn, they collect in thousands, and retire into the more southern latitudes. In spring, they again divide into little flocks, and wander northward, continually shifting their residence. These creatures are remarkable for their vigilance; and, by a kind of instinct, never all lie down to rest at the same time: while the majority repose, some watch as centinels; and, in their turn, are succeeded by others thus refreshed. By this precaution, which strongly marks their sagacity, they guard against the approaches of wolves, and baffle the stratagems of the hunters.

Though the Scythian Antelopes outstrip the swiftest couriers, they are often overtaken through timidity and shortness of breath. While running, they seem to incline to one side, and scarcely to touch the ground; but no sooner does a dog give them the slightest wound, than they instantly tumble down, without the least appearance of resistance. In a state of nature, they have no voice; but, when brought up tame, they utter a sound nearly resembling the bleating of sheep. The heat of the sun, reflected from the sandy deserts which they traverse, renders them almost blind in summer, or at least extremely short-sighted; and, of course, more liable to be caught. Of all animals of the kind, this species seems to be the most libidinous, and vigorous. If caught young, they are capable of being rendered very docile and domestic; but, when old, they become wild and untractable, and refuse every species of sustenance while in a state of confinement. The hunters pursue them with guns, dogs, or black eagles trained up to this kind of falconry; and they always approach them against the wind, lest these creatures should smell their enemies;

enemies; and carefully avoid falling forth in gaudy colours, which might attract the notice of their destined prey, and warn them of the impending danger.

ANTELOPE, CERVINE. This is the bubalus of antiquity, and the bekker el wassh of the Arabs; a most singular animal, partaking of the mixed natures of the cow, the goat, and the deer. It resembles the stag in the size and figure of it's body, and particularly in the conformation of it's legs; but it has permanent horns like those of the goat, and formed entirely like those of the antelope genus. It also resembles that animal in it's way of living; however, it differs widely from it in the shape of it's head, being exactly like the cow in the length of it's muzzle, and in the disposition of the bones of the skull, from which similitude it received it's ancient name. The head of this animal is long and narrow; the eyes are placed very high; the forehead is short and narrow; and the horns, which are about a foot long, are black, thick, and annulated, the rings being remarkably large. It's shoulders rise very high, and it has a kind of bunch on them, which terminates at the neck; the tail measures about a foot, and is tufted at the extremity. The hair of this animal is remarkably thicker at the middle than at the root; for, in all other quadrupeds, except this and the elk, the hair tapers off from the bottom to the point; but, in these, every hair seems to swell in the centre. The bubalus resembles the elk as well in size as in the colour of it's skin; but these are the only similitudes between them, the one having a very large branching head of solid horns, annually deciduous, while the other has black, unbranching, hollow horns, which never fall. The colour of this animal is a reddish brown: but it is white about the rump, the inner side of the thighs, and the lower part of the belly; and a dark space occupies the top of the back, the front of the upper part of the fore legs, and the hinder part of the thighs. It inhabits Barbary, and probably other parts of Africa; and is also met with towards the Cape of Good Hope. It is a gregarious animal; gallops apparently with a heavy pace, yet making amazing progress; and, when it fights, it drops on it's knees, like the white-footed antelope, already described.

ANTELOPE, SENEGAL. The head and body of this animal are of a light reddish brown, with a narrow black list down the hind part of the neck; it's rump is of a dirty white; and on each knee, and above the fetlock, it has a dusky mark. The hoofs are small; and the tail, which is covered with coarse black hairs, is about a foot long. It's horns are almost close at the base, but bend outwards very considerably a little above: towards the end they approach each other again, receding near the points, which bend backwards. In the centre they are above six inches distant, higher up only four, and six at the extremities. They are seventeen inches long, and eight in circumference at the base, being surrounded with fifteen prominent annulations, which become smooth and sharp at the points. The ears of this creature are seven inches long; and it's head is large and clumsy, measuring about eighteen inches. This species inhabit Senegal, where the French call it *la grande vache brune*, or great brown cow.

The petite vache brune of Buffon, called the Gambian Antelope by Pennant, nearly resembles the former in it's figure and colour, but is in-

ferior in size. It's horns are differently constructed, being thirteen inches long, and five and a half in circumference at the bottom; they approximate each other at the base and extremities, but have a considerable curvature in the middle; and they are surrounded with eight or nine annulations at the base, but become perfectly smooth at the extremities.

ANTENNÆ. See FEELERS.

ANTHIA. A title by which some naturalists very improperly describe the *falx venetorum*, or fickle fish, a long anguilliform fish of the tænia kind.

ANTHIAS. The name of a fish somewhat resembling the *turdus* or wrasse family, of which some have described four species; but Linnæus, with more propriety, refers it to the *labrus*.

ANTHROPOGLOTTUS. An animal endowed with the power of speech like a man, or having a tongue of similar formation. Under this distinction are comprehended the parrot kind, on account of their broad, thick, and muscular tongues, by which they are enabled to speak, and to roll their meat from side to side under the edges of their bills.

ANTHROPOMORHPA. In the Linnæan system, a class of animals in some degree resembling the human form; under which designation this author includes apes, monkeys, maucacos, and bats. This appellation is derived from *Anthropos*, a Man; and *Morphe*, a Form.

ANTHUS. A name by which Aldrovandus, and some other naturalists, have distinguished that species of the *cœnanthe* commonly known in England by the appellation of the whin chat.

APE. A numerous tribe of animals chiefly confined to the torrid zone, which are furnished with hands instead of paws; their ears, eyes, eyelids, lips, and breasts, are like those parts in the human race; their internal conformation also bears some distant resemblance to the human; and their whole figure exhibits a picture sufficiently mortifying to the pride of those who make their persons the principal objects of their admiration. These animals have fingers and nails on their hands like those of a man, but more rough and unpolished; their feet are like larger hands, being divided into fingers and toes, of which those in the middle are the longest. They are also extremely lively, agile, and full of frolic, chatter, and grimace; and, from the peculiar structure of their bodies, they are capable of many actions peculiar to human beings. They are, in general, fierce and untractable; though some of them are of a milder nature, and will sometimes shew a considerable degree of attachment, though naturally mischievous, filthy, obscene, lascivious, and addicted to thieving. They inhabit the immense forests of India, Africa, and America; live in trees; and feed on fruits, leaves, and insects. They bound from one tree to another with surprising agility, even when loaded with their young, who cling closely to them on every appearance of danger. In general, they are gregarious, living in vast societies, but the different species are never found intermixed. They are the prey of leopards, and other animals of the feline kind; and considerable numbers of them are frequently devoured by hideous serpents, which inhabit the forests, and sometimes pursue them to the very summits of the trees, and swallow them entire. Though not naturally carnivorous, they will rob the nests of birds purely for the sake of mischief,

mischievous, and destroy both the eggs and the young. In those countries, therefore, where Apes most abound, the feathered tribe discover a remarkable degree of sagacity; contriving their nests with the utmost ingenuity, and placing them in such situations as may render them least liable to the observation, or wholly beyond the reach, of these invaders. These animals, however, are very different from one another; and their numbers, and various conformations, render it necessary to methodize and subdivide the genus.

In the Ape kind, properly so called, we see the whole external machine strongly impressed with the human similitude, and seemingly capable of the same exertions: they walk erect; are without tails; and have fleshy posteriors, calves to their legs, and feet nearly like those of men.

In the baboon kind, or second division, we perceive a more distant approach to the human form. These, which generally go on all-fours, but have the power of erecting themselves at pleasure, have short tails, long snouts, and are possessed of brutal fierceness.

In the monkey kind, or third division, which are removed a step farther from the human form, the size of the animal becomes much more diminutive, the tail long, and the face flattish.

APE, LARGE, OURANG OUTANG, OR WILD MAN OF THE WOODS. Names given indifferently to various animals, agreeing in one common character of walking upright, but natives of countries, and possessing proportions and powers extremely dissimilar. The troglodyte of Bontius, the drill of Purchas, and the pigmy of Tyson, have all received this general appellation; and, by some naturalists, they have been ranked under one general description. If credit be given to the reports of many travellers, we are, under this name, presented with a formidable animal from six to eight feet high; while others, of equal authority, make it no more than three or four. In this diversity of accounts, we must be satisfied with blending the whole into one general description, having no reason to dispute any of their relations.

The Ourang Outang, then, which of all other animals most nearly approaches the human form, appears to be of different sizes; from three to six, seven, and even eight feet high: in general, however, its stature seems to be much less than that of man; but it far exceeds him in strength and agility. Travellers who have had opportunities of seeing several of these animals in their native solitudes, give surprising relations of their force, their swiftness, their address, and ferocity; while such naturalists as have viewed them only in a state of captivity, have chiefly admired their patient, pliant, imitative dispositions, with that curious appearance and conformation which render them so nearly human. Several of the smaller species of these animals have occasionally been exhibited in England; but that observed by Dr. Tyson is best known to naturalists, having been described with astonishing minuteness and precision. This animal, in the description of which that learned physician displayed so much ingenuity, was brought from Angola; having been caught in the internal parts of that country, with a female of the same species, who died before she could be transported into Great Britain. The body was covered with black hair, more resembling that of the human species than of brutes; and, in its different lengths,

it bore a still stronger similitude to that of man; for, in all those parts where it is longest on him, it was also longest on the Ourang Outang. The face nearly resembled that of a man; the forehead, however, being larger, and the head more orbicular: the upper and lower jaws were not so prominent as in monkeys; but flat, like those of mankind. The ears were exactly like those of the human race; and the teeth bore the same resemblance: the joints of the arms and legs were likewise the same as in man; and, in short, the animal, at first view, exhibited a figure almost wholly human.

However, on a more minute inspection, the variations between this creature and the human race, and the comparative imperfections of its form, became plainly conspicuous. The first obvious difference was in the flatness of the nose; the next, in the lowness of the forehead, and the deficiency of the prominence of the chin: the ears, likewise, though regularly formed, were disproportionably large; the eyes too close to each other; and the interval between the nose and mouth too extensive. The thighs were too short, and the arms too long; the thumb too small, and the palms of the hands too narrow: the feet also had less the conformation and appearance of hands than at first glance they appeared to possess; and, if we may judge from the figure, the animal had too great a bend with its hams. On an anatomical examination, however, a surprising similitude was seen to prevail in the internal conformation; though it differed from man in the number of ribs, having thirteen, whereas he has only twelve: the vertebrae of the neck were also shorter, the bones of the pelvis more narrow, the orbits of the eyes deeper, the kidneys rounder, the urinary and gall-bladders longer and smaller, and the ureters of a different shape.

Such were the principal distinctions between the internal parts of this animal and those of man; in almost every other respect they were exactly the same: indeed, many parts were so much like those of the human species, that it seemed astonishing they should not be productive of greater advantages. The tongue, and all the organs of the voice, were the same as man's; and yet the animal was dumb; and the brain was likewise formed in the same manner as his, though the creature was destitute of reason: an evident proof, as Buffon very beautifully observes, that no disposition of matter can constitute a mind; and that the body, however nicely soever constructed, is constructed in vain, when no soul is infused into it for the purpose of directing its operations.

The back and posteriors of the Ourang Outang, as described by Dr. Tyson, were exceedingly hairy; and this covering was so thick, that the skin was with difficulty discerned: but, in front, the hair was considerably thinner, the skin every where appearing, and in some places being almost bare. When it went on all-fours, it appeared entirely hairy; but, when it stood erect, the difference we have just noticed between the back and front was immediately conspicuous. The hair had none of that finer and shorter fur intermixed, which is usually seen on brutes, but was wholly of one kind; except only that it was greyish, and a little longer, about the pubes, and on the upper lip and chin. The face, hands, and soles of the feet, were perfectly clear, as was also the greatest part of the forehead; but, down the sides of the face, the hair was thick, being there about an inch and a half long,

which exceeded the length of that on the body. The lines in the palms of the hands were plainly distinguishable; and, at the tips of the fingers, those spiral ones common to man were distinctly marked: the palms of the hands, however, were as long as the soles of the feet; and the toes were of the same length as the fingers. The middle toe was longest; and the conformation of the whole foot differed essentially from that of the human species. The hinder-feet being thus formed, the animal often used them as hands; and, on the contrary, sometimes used its hands instead of its feet. The breasts appeared small and shrivelled, but exactly like those of a man: the navel, too, appeared very fair, and well disposed; being neither harder, nor more prominent, than it is usually seen in children.

Such is the doctor's description of this extraordinary animal; to which little has been added by succeeding observers, except that the colour of the hair is often found to vary: and in that drawn and described by Edwards it was of a reddish brown.

A picture so nearly resembling that of the human species, naturally leads us to expect a corresponding mind; and certain it is, that such of these animals as have been seen in Europe, display a degree of imitation beyond what any quadruped is capable of attaining. The Ourang Outang of Tyson was a gentle, fond, and inoffensive creature. During its passage to England, it would embrace such of the sailors as paid it any particular attention with the utmost tenderness; opening their bosoms, and clasping its arms about them. It regarded monkeys, and even Apes of a lower species, with the most irreconcilable aversion; studiously avoiding the place where they were kept in the same vessel, and seemingly regarding itself as a very superior creature. After it had for some time been accustomed to the use of cloaths, it became very fond of them; and would itself put on part without any help, carrying the rest to some of the ship's company for assistance. It would lie in bed, place its head on the pillow, and pull the cloaths upwards to cover itself, in the same manner as a man.

But the animal seen by Edwards, and described by Buffon, shewed a still superior degree of sagacity. It walked on two legs, even when it carried a burden; its air being always melancholy, and its whole deportment tinged with gravity. Dissimilar to the baboon or monkey, whose motions are violent, and their appetites capricious; who are fond of mischief, and submissive only through fear; this animal was deliberate in its motions, and a look was sufficient to intimidate it. 'I have seen it,' says Buffon, 'give its hand to shew the company to the door. I have observed it sit at table, unfold its napkin, wipe its lips, make use of the spoon and fork to carry its victuals to its mouth, pour out its drink into a glass, join glasses when invited, take a cup and saucer and place them on the table, put in sugar, pour out tea, and leave it to cool before drinking; and all this at the slightest intimation from its master, and frequently without being required.' It was docile and inoffensive; approached strangers with respect; and seemed rather to expect caresses, than disposed to offer injuries. It was particularly fond of sugared comfits, which every one readily gave it; and, having a defluxion on the breast, so much sweet food contributed to increase its malady, and shorten the period of its existence. It continued in Paris only one summer; and, being brought to Eng-

land, died a short time after in London. It eat indiscriminately of all things; but seemed to prefer dry and ripe fruits: it would drink wine in small quantities; but gladly exchanged it for milk, tea, or any other sweet beverage.

Such have been the habits and dispositions of these animals when brought into Europe: but many of these extraordinary instances of docility were probably the effects of education, and we are not informed how long the instructions they received for this purpose were continued. We learn, however, from another account, that they take but a very short time to arrive at a great degree of imitative perfection.

Le Brosse bought two young ones, only a year old, of a negro; and these, at that early age, discovered an astonishing power of imitation: even then they sat at table like men; eat of every thing indiscriminately; made use of knives, forks, and spoons, both to eat their meat and help themselves, with extraordinary adroitness and decency; and drank wine, and other liquors. When carried on shipboard, they made signs to the cabin-boys, expressive of their wants; and, whenever the lads neglected attending them, they fell into violent passions, seized them by the arms, bit them, and kept them down. The male was sea-sick, and required attendance like a human creature: he was even twice bled; and ever afterwards, when he found himself disordered, held out his arm, as desirous of being relieved by bleeding.

Pryard relates that, in the country of Sierra Leona, in Africa, there are a kind of Apes called baris, which are strong and muscular; and, being properly trained from their youth, can even pound at a mortar, and in other respects act as very useful domestics. They usually walk upright; and, going to the river for water, carry it in little pitchers on their heads; which, however, must be carefully taken from them at their return, as they otherwise let them fall, and set up a melancholy cry and lamentation on beholding the fragments.

La Compte gives nearly a similar account of an Ape which he brought from the Straits of Molucca. It walked on its two hind-feet, a little bent like those of a dog learning to dance; and made use of its hands and arms in the same manner as the human species. Its visage was not more disagreeable than that of a Hottentot; but the body was entirely covered with woolly hair of different colours. It cried like a child; and all its external actions so much resembled those of the human race, and the passions were so lively and significant, that a dumb man could hardly express his conceptions and desires with more effect: it had also that expression of passion, or joy, which we often see in children; stamping with its feet, and striking them against the ground, to shew its spirit, when refused any thing it greatly desired. 'Though these animals,' continues La Compte, 'are very big, (for what I saw were four feet high) their agility is incredible. It is a pleasure beyond expression to see them run up the tackling of a ship, where they sometimes play, as if they had a knack of vaulting peculiar to themselves, or as if they had been hired as rope-dancers to divert the company. Sometimes, suspended by one arm, they poise themselves, and then turn all of a sudden round about a rope with as much velocity as a wheel or a sling put in motion: at others, holding the rope successively with their long fingers, and letting their whole bodies fall into the air, they run full speed from one end to the other, and come back

back again with the same expedition. There is no posture they do not imitate, nor any motion they are at a loss to perform: bending themselves like bows, rolling like bowls, and hanging by the hands, feet, and teeth, according to the different fancies prompted by their capricious imaginations. In short, such is their agility, that they can fling themselves from one rope to another, at thirty, forty, or even fifty feet distance.'

These are the habitudes and powers of the smaller class of these extraordinary animals; but we are presented with a very different picture in those of a larger stature, and more muscular form. Those we have yet described, which are seldom found above four feet high, seem to partake of the nature of dwarfs among the human species, being gentle, assiduous, and playful, and rather calculated to amuse than to alarm: but the gigantic race of Ourang Outangs, seen and described by some travellers, is truly formidable; and, in those gloomy forests where they are usually found, they seem to hold an undisputed empire. Many of these exceed the human race in stature; are possessed of superior activity, strength, and intrepidity; and appear to be cunning, lascivious, and cruel. These formidable rivals of mankind are found in many parts of Africa, as well as in the East Indies, Madagascar, Borneo, and some other tropical islands. In Borneo, in particular, the nobility course them as we do stags; and this kind of hunting is said to be the favourite amusement of the king and royal family. Their skins are all hairy; their eyes sunk in their heads; their countenances stern; their faces tanned; and all their lineaments, though exactly resembling those of mankind, are harsh, and darkened by the sun.

In the sultry and desert regions of Africa, the Ourang Outang is still more formidable. Battel gives it the appellation of the pongo; and assures us that, in all respects, it resembles a man, except in its superior magnitude. Its face is almost entirely human; the eyes are deep sunk in the head; and the hair on each side of the visage is extremely long, though the face itself is naked, and without hair, as well as the ears and hands. The body is lightly covered, and scarcely differing from that of a man; but the creature has no calves to its legs, though it walks erect. It sleeps under shady trees; and erects itself a hut, as well to protect it from the ardent heat of the sun, as the violence of the tropical rains: it subsists entirely on fruits, and is in no respect carnivorous. It is possessed of greater instinct than any other animal of the brute creation; and, when the negroes make fires in the woods, has so little timidity, that it generally approaches to warm itself: but it does not appear to have sufficient skill to keep the flame alive by throwing on fresh supplies of fuel. It is a gregarious animal; and, if it meets any of the human species alone, seldom shews them any mercy: it will even attack the elephant, beating it with clubs, and compelling it to retire from that quarter of the forest which it claims as its own. No human art can avail to catch one of these dreadful creatures alive: for they are so strong, that ten men would hardly be a match for one of them; and so fleet, that it is impossible to overtake them. None of this kind, therefore, are ever caught, unless when very young, and the female chances to leave them behind; and this happens but seldom, as they generally keep clung to the breast, adhering both with their legs and arms. The same traveller also says, that when one of these animals dies, the rest cover the body with a quantity of leaves and branches.

From another traveller, the ingenious Le Broffe, we learn that these animals often attempt to surprize the female negroes in the woods, where they forcibly detain them for the pleasure of their society, feeding them with the choicest fruits they can procure; and he assures us that he knew a woman of Loango, who had lived among these animals for three years. They grow from six to seven feet in height, and are endowed with prodigious strength. They build sheds for their shelter, and make use of clubs for their defence. Their faces are broad, their noses flat, their ears destitute of lips, their skins brighter than a Mulatto's, and they are covered on many parts of the body with long tawny hair: their bellies are large and prominent; their heels flat, yet rising behind; and they generally walk upright, though they can go on all-fours with equal facility.

From this view of the Ourang Outang, we may perceive at what an infinite distance the first animal of the brute creation is placed from the very lowest orders of the human species! Even among the most savage nations, it is considered as a mere beast; and, in those very places where we might suppose there is the smallest real difference, the inhabitants regard it with the utmost contempt and detestation. In Borneo, where this animal has been said to arrive at the greatest perfection, and to display the highest degree of imitative excellence, the natives hunt it in the same manner as they pursue the elephant or the lion, its near affinity to the human form procuring it neither pity nor protection.

The gradations of Nature in the other parts of her works are minute and imperceptible: in the transition from quadrupeds to fishes, we can scarcely tell where the quadruped ends and the fish begins; in the descent from beasts to insects, we can hardly distinguish the steps of the progression; but, in the ascent from brutes to men, the line is strongly drawn, well marked, and decisive. In vain the Ourang Outang may resemble man in form, or may possess the power of imitating his actions; it still continues a wretched, helpless creature, pent up in the most gloomy parts of the forest; and, with regard to any provident provision for its own accommodation or happiness, it appears greatly inferior to the elephant, or beaver, in sagacity. To unenquiring mankind, indeed, this animal may appear much wiser than it really is. Accustomed to estimate the sagacity of all actions by their similitude to our own, regardless of their aptitude to the animal's way of life, we are charmed with the humble imitations of the Ape, even while we are convinced by our senses that they are far from contributing to the felicity of its situation. An Ape, or a quadruped, when under the trammels of human education, may be an admirable object for our curiosity; but the creature is very little profited, by all its learning, in the advancement of its own felicity: on the contrary, it has been always remarked, that these long-tutored animals have a melancholy in their air, sufficiently expressive of the wretchedness of their situation, and which indicates the solicitude of their minds. The marks of seeming sagacity are merely relative to us, and not to the animal itself; and all its boasted wisdom is entirely the effect of our own tuition.

Another circumstance relative to this animal ought not to be disregarded: there is great reason to believe that the most perfect of the kind, like the rest of the quadruped creation, only owe their erect attitude to human education. Almost all the travellers who mention them, speak of their going on all-fours;

fours; though, as their chief residence is among trees, they are without doubt seen erect while climbing: but it appears highly probable that, when they employ every effort to escape, they make use of the united aids of their hands and feet. Schou-ter, who mentions their education, tells us that they are caught in traps, and taught at first to walk on their hind-legs; which certainly implies his opinion to be, that they walk on all-fours in their natural state: and, on examining the palms of their hands, and the soles of their feet, we find both equally callous and beaten; an incontestible proof that both have been equally used. In those fervid climes which give birth to the Ape tribes, the feet of the negroes are covered with a skin above an inch thick, while their hands are as soft as those of Europeans; and, if the Apes walked in the same manner, they would doubtless have been furnished with similar advantages. Besides these analogical conclusions, we have the authority of some very respectable travellers in their support: who inform us, that these animals run on all-fours in the woods; and that, when they are taken, their hands are tied behind them, to teach them to walk erect. This attitude becoming in some measure natural to them, after a proper period of instruction, they are sent into Europe, thus trained, to astonish speculative philosophers with their near approaches to humanity; little or no regard being in general paid to the discrimination of what is natural in the animals, and what they have acquired in the savage schools of Angola and Benin.

APE, PIGMY. This animal has a flattish face, with ears strongly resembling those of the human species. The body is about the size of a cat's; the colour of the hair being an olive brown, with a yellowish tinge beneath. These animals are gregarious, and feed on fruits and insects; particularly ants, of which they are so remarkably fond, that they turn over every stone in search of them. When attacked by wild beasts, they betake themselves to flight; and, if they happen to be overtaken, boldly face their pursuers, flinging the subtle sand of the desert in their eyes, so as often to effect their escape. They inhabit Africa; and are frequently exhibited among our collections of foreign animals: they are docile, and of a gentle disposition, and appear to be the Pigmies of antiquity. In Æthiopia, one seat of that imaginary nation, they are extremely numerous. The ancients had many ridiculous legends respecting these Pigmies; whom they described as a people residing near the fountains of the Nile, and represented as annually levying war against the cranes; (that is, to steal their eggs;) and hence the fiction of their combats. None of the ancients, however, have ventured to assert, as from their own knowledge, that such a nation ever existed: Strabo judiciously remarks, that the account of them rests solely on report; and Aristotle speaks of them only by hearsay, when he informs us, that they rode on goats, rams, and even birds of no very considerable size. The Indians, taking advantage of vulgar credulity, sometimes embalmed this species of Ape, and sold them as real Pigmies; and of this kind, unquestionably, were the diminutive mortals mentioned by Groffé, which he tells us were found in the forests of the Carnatic.

APE, LONG-ARMED. This animal, to which Buffon gives the name of the gibbon, is a very extraordinary and remarkable creature. It is of different sizes, being from two to four feet in stature. It's face, which resembles that of a man, has

a circle of bushy hair all round; it's eyes are large, and are sunk in their sockets; it's features are much tanned; and it's ears are well-proportioned. It walks erect, and is destitute of a tail; the nails on the fingers are flat, those on the toes being remarkably long. But it chiefly differs from all others of the Ape tribes in the extraordinary length of it's arms, which are long enough to reach the ground when the animal stands erect; so that it can walk on all-fours, and at the same time preserve it's upright posture. This animal, next to the ourang outang, has the strongest resemblance to mankind, not only in it's figure and conformation, but in it's docility and gentleness of manners.

The Long-Armed Ape, of which there is a greater and a lesser species, is a native of the East Indies, and particularly found along the coast of Coromandel. In the forests of Devat, in the interior parts of Bengal, it grows to the height of a man, and is there called jolok. It is also found in Malacca, the Molucca isles, and in Sumatra; where hundreds may be seen together on the tops of the trees.

The great black Ape of Mangsi, a province of China, and mentioned by Du Halde, is probably of this species. Sir Ashton Lever has a specimen in excellent preservation; the body of which is covered with very long soft hair, and the hands reach quite to the ground. The height of the animal is three feet.

APE, BARBARY. This species, which Buffon distinguishes by the name of the magot, is wholly destitute of a tail, though it has a small protuberance on it's large, red, and callous rump. The face is peculiarly prominent, and far more like that of a quadruped than of a man. The body is covered with a dirty greenish brown hair, that on the belly being of a dull pale yellow. It has flat nails, ears like the human race, and bare buttocks. It generally grows to about four feet in height; and inhabits many parts of India and Arabia; as well as the whole continent of Africa, except Egypt, where none of this kind have ever been discovered. These animals, as they recede from the human form in conformation and figure, appear also very different in their dispositions; being fullen, vicious, and untractable. They are frequently exhibited in Europe; and, by mere force of discipline, are brought to perform several tricks: but they are naturally unamiable in all their manners. In the open country of Indostan, they sometimes assemble in great numbers; and they often attack the women going to market, and rob them of their provisions. The females of this species carry their young in their arms; and, though thus encumbered, leap with surprizing agility from tree to tree.

Some savage nations regarding these animals as their principal divinities, have erected the most magnificent temples to their honour; and when the Portuguese plundered a religious structure of this kind in Ceylon, they are said to have found the tooth of an Ape in a small golden casket, which was held by the natives in such extraordinary veneration, that they offered 700,000 ducats for it's redemption: but the equally superstitious viceroy refused this advantageous offer for his country; insisting that it should be burnt, in order to check the progress of idolatry.

APE, TUFTED. The head of this animal is fourteen inches long; the face being blueish and naked, and the nose of a deep red colour. The eye-brows are black, and the ears are formed like those organs

in mankind. It has a long upright tuft of hair on the crown of it's head, another under it's chin, and two long tusks in the upper-jaw. The fore-feet resemble human hands, but the nails on the fingers are flat. The fore-part of the body, and the inside of the legs and arms, are quite naked: the other parts are covered with mottled brown and olive-coloured hair, that on the back being dusky; and the buttocks are red and bare. The length of the whole animal, in Sir Ashton Lever's Museum, falls something short of three feet six inches. It has a most savage and disgusting appearance, and is peculiarly fierce and falacious. Though it usually goes on all-fours, it will sometimes sit on it's rump, and support itself with a stick: in this attitude, it holds a cup in it's hand, out of which it drinks with facility. This animal, like the rest of the Ape tribe, chiefly subsists on fruits, and has apparently no carnivorous appetites.

APE HOG. This animal, to which Aristotle gives the name of *simia porcaria*, is a species of which moderns have no perfect knowledge. Buffon imagines it to be the baboon; but, as Aristotle expressly describes Apes as having no tails, and enumerates this as one of the genus, we cannot subscribe to the opinion of this celebrated naturalist. In the British Museum, there is a drawing of an Ape, with a nose exactly resembling that of a hog, which may perhaps be intended for the animal mentioned by Aristotle; but the painting is unaccompanied by any account which might enable us to trace it's history.

APE, SEA. Mr. Stellar, in his *History of Kamtschatka*, describes a very singular animal which he saw on the coast of America, and to which he gives the name of the Sea Ape. It's head resembled that of a dog; it's ears being short and erect; it's eyes large; and it's lips covered with a sort of beard. The length of it's body was about five feet, and it's form was thick and round; being largest near the head, and tapering to the tail, which had two prongs. The body was covered with thick hair, grey on the back, and red on the belly; but our author could neither discover feet nor paws. It appeared extremely frolicsome, and diverted itself with a variety of tricks; sometimes swimming on the one side of the ship, and sometimes on the other, and apparently observing it with great amazement. It frequently approached so near the vessel, that it might have been reached with a pole; but, on the smallest motion of the sailors, it immediately retired. Sometimes it would raise itself so as to have at least a third part of it's body out of water, and continue erect for a considerable time; then, suddenly darting under the ship, instantly appeared on the other side exactly in the same attitude: and this frolic it repeated for thirty or forty times successively; sometimes bringing up sea-plants, wantonly tossing them about, and catching them again in it's mouth, with a number of other fantastic tricks.

APER. A sea fish, called by some *strivale* and *riondo*. It approaches very much in shape to the *faber* or *doree*, but is considerably smaller.

APER. The classical name for the boar.

APER MOSCHIFEROUS. A name by which some naturalists have distinguished the *tajacu* of America.

APEREA. A small American animal of the rabbit kind, apparently of a mixed nature between the rabbit and the mouse; having exactly the short round ears of the mouse kind, but all the other prop-

erties of the rabbit. It therefore obtains the name of the Brazilian rabbit, and generally grows to about a foot in length. It's upper-lip is divided; it's ears are short; it has four toes on the fore-feet, and three on the hind; and is destitute of a tail. The colour of the upper part of the body is black, mottled with tawny; and it's throat and belly are white. It is a native of Brazil, where it lives in the holes of rocks; and, being forced from it's shelter, is hunted by dogs. It's flesh is superior in goodness to that of the European rabbit; and it resembles the hare in it's paces.

APER PISCIS. An appellation which some authors have given to the sea-fish, more usually called the *capricus*.

APHIS. The name of a genus of insects, called also *pediculus arboreus*, or the wood-louse, belonging to the *hemiptera insecta* of Linnæus, and of which that great naturalist has enumerated sixteen different species; namely, that of the currant-bush, of the elm-tree, of the elder, of the maple, of the lime-tree, of the birch, of the pine, of the rose, of the parsnip, of the dock, of the *carduus benedictus*, of the mugwort, of saw-wort, of chick-weed, of the lily, and of the cabbage.

The species, however, are certainly more numerous; but they are all denominated from the trees, bushes, or plants, on which they are respectively found. According to the observation of an ingenious naturalist, the Aphides are at one time of the year viviparous, and at another oviparous. Those of the rose-tree have been particularly remarked; and, of ten generations, which regularly succeeded each other in the course of one spring, summer, and autumn, the first proceeded from eggs laid during the preceding autumn; the eight following were all produced viviparous, and consisted entirely of females, of which gender, likewise, was the first brood; and, in the tenth generation, which appeared rather earlier than the middle of September, a few male insects were discovered: these last arrive at their full growth in three weeks; and, having intercourse with the females, those eggs are soon laid which become hatched in the spring. As these insects differ more in colour and size, than in any peculiar habits or conformation, it will be sufficient to give a description of one species, the Aphis of the currant-bush, from which the figure of the rest may be easily conceived. This creature is about the size of a common louse, and of a brownish green colour. The legs are green; the joints of the knees, which commonly project above the body, are brown; the feelers, which are straight and slender, contain a joint near the head, where they are somewhat bent, and exhibit a darkish appearance. The hinder part of the breast is blackish; the sides of the body are variegated with small black spots; and the wings, which are erect, are whitish, except only that they have a few black veins, and two of them are extremely minute. The vent is prominent, and furnished with two bristly appendages considerably shorter than the wings.

APHRODITA. A genus of sea insects, called by Columna the *puendum regale*; by Bartholinus, *vermis aureus*; and by others, *mus marinus*, or the sea-mouse. The general characteristics are, that it's figure is oval and aculeated, having a number of fasciculi on each side, supplying the place of feet; it's mouth is cylindric, retractile, and placed at the extremity; and it is furnished with two cetaceous feelers. It is one of the *gymnarthrodia*, or insects with naked bodies; and belongs to the

order of molucca, in the Linnæan arrangement of worms. There are several distinct species, considerably varying from one another, found on the coasts of the British isles; which Pennant has distinguished by the names of the aculeated, scaled, pedunculated, annulated, and little.

The *Aphrodita Aculeata* is clothed with short brown fur on the back; the sides are covered with green hairs, of a very beautiful hue, mixed with sharp spines; and the skin of the belly is bare. The feet are composed of a fasciculus of five or six strong spines, which grow to the length of five or six inches; and of which there are about thirty-six on each side.

The *Aphrodita Squammata* has the back covered with two rows of large deciduous scales; and is somewhat more than an inch in length.

The *Aphrodita Pedunculata* is distinguished by having two rows of scales on the back, placed alternately; the mouth is cylindric and projecting; and the animal is about an inch long.

The *Aphrodita Annulata* is of an oblong figure, annulated and smooth, except that a row of small spines, one on each annulation, run along the back; it's feet are small; it's length is about two inches and a quarter; and it's colour is a pale yellow.

The *Aphrodita Minuta* is distinguished by the minuteness of it's scales, and the slenderness of it's form. It's length is somewhat less than an inch.

APHUA COBITES. A name sometimes applied to express the fish called in England the sea-loach, which is frequently caught in the Mediterranean seas, and never exceeds three or four inches in length. It's body is round, with a little depression on the back; and it's colour white, with a variation of black spots disseminated over the whole.

APIARIA. A fly which makes it's appearance only in autumn, and is commonly found on parsley. It is a species of the *attelabus*; and is furnished with two wings of a deep shining black. It collects wax on it's thighs after the manner of bees, from which circumstance it receives it's name.

APIASTER. A name by which some naturalists express the bee-eater, more generally known by the appellation of *merops*.

APIS, or APES. A genus of four-winged insects; their wings being entirely membranaceous, and their tails furnished with stings. This genus comprehends the bee, wasp, hornet, and humble bee.

APIVORUS BUTEO. A title by which some authors express the bird usually known in England by the name of the honey-buzzard. It is a little larger than the common buzzard; it's beak is black, aduncated, protuberant in the middle, and covered down to the nostrils with a black wrinkled skin; and it's mouth opens very wide, having internally a yellowish hue. This bird either builds itself a nest of sticks covered with wool, or occupies the deserted habitation of a kite for the purpose of breeding it's young; which it principally feeds with the nymphs or magot-worms of bees and wasps, and pieces of honey-combs are frequently found in the nest; itself feeding on newts, frogs, and other small animals. It is remarkable for running swiftly on the ground; and the female is distinguished from the male by being larger, a common mark of discrimination in birds of prey.

APODES. A title of Greek derivation applied by zoologists to signify a fabulous kind of birds, said to exist in some of the oriental islands; and which, being entirely destitute of feet, support

themselves on the branches of trees by their crooked bills. The Dutch and Germans have also their *Apodes*; a species of birds resembling the common swallow, with legs and feet so extremely minute, as to be rather adapted for creeping than running.

APODES. One of the four orders of fishes, in the Linnæan system; comprehending eight genera, and twenty species. Their distinguishing characteristic is, that they are destitute of ventral fins.

APPLE FLY. A name usually applied to express a small green fly found sometimes on the rind of an apple, and hatched by a worm, or maggot, which infests that fruit.

APTERA. A classical name derived from the Greek, and used to denote that order of insects which have no wings. In the Linnæan system of arrangement, they form the seventh order in the class of insects, comprehending fourteen genera, and two hundred and ninety-seven species. Hill subdivides this series into two classes; namely, such as have neither wings nor legs, to which he gives the appellation of *Aptera anarthra*; and such as have legs but no wings, which he calls *Aptera podaria*.

APUA. The name of a small fish, which some naturalists have fancifully supposed is generated by the mud and slime on the shores; but such absurd conjectures as these require no confutation. There are two species of this fish; the *Apua Vera*, and the *Apua Phalerica*.

APUA MEMPRES. A name by which some denote the common pilchard.

ARACARI. The name of a Brazilian bird, of the woodpecker kind. It's size is equal to that of the common green woodpecker; and it has a bill four inches long, an inch and a half broad or deep, and three inches and a half round in the thickest part, which bends downward, and is sharp-pointed like a parrot's. The upper mandible is larger and longer than the lower one; and both are deeply ferrated above half way from the end. The bill is hollow, and as light as sponge; the upper mandible being white, distinguished by a black line running along the middle or ridge from head to point, and the lower one wholly black. The bill has a triangular form at it's insertion into the head, where it is surrounded with a white line. It's tongue, which is four inches long, is black, and has the appearance of being feathered. It's head, which is not very large, is broad, and compressed; it's eyes are big, and have black pupils, with yellow irides; and the neck is not longer than a parrot's. The body, from the rise of the neck to the tail, is about five inches long; the tail, which is broad like the woodpecker's, is at least six; the thighs are two inches, and the legs one inch and a half. The legs and feet, like those of parrots, are black or dark green, having two fore-toes, one longer than the other; and two back-toes, likewise of unequal lengths. The claws are crooked, and of a dusky or black colour. The breast, and whole lower belly of this bird, are elegantly clothed with yellow feathers, mingled with pavonine; and, across the breast, from one side to the other, there is a broad red line. The back, wings, tail, and thighs, are covered with blackish green feathers, like those on the common magpye; and the end of the back, above the beginning of the tail, is a deep red for a considerable length. The wings, which terminate at the rise of the tail, are lined with a dark ash-colour; and the inside of the bill is black. This bird has an odd cry, in which it nearly pronounces it's own name, 'Aracari!'

'Aracari!' It considerably resembles the toucan, or Brazilian pye; and, from the conformation of its feet, seems evidently of the woodpecker kind.

ARACHNOIDES. The name of one of the genera of the echini marini: the distinguishing characters of which are, that it is of a circular form, but variously indented at the edges; the mouth is round, and placed at the centre of the base; and the aperture for the anus is quadrangular, and situated in one of the sides on the superior superficies, but near the edge.

ARANEA. A genus of the aptera insects, in the Linnæan system. See SPIDER.

ARANEA CONCHA. The name of a genus of sea-shell, of which there are several species; usually distinguished in England by the name of spider-shells. They belong to the family of murex, and their peculiar character is the having digitated lips. The several species have different numbers of fingers, from the lip of the shell, as four, five, six, seven, and eight.

ARANEUS MARINUS. The sea-spider; a name by which some naturalists have expressed the fish more usually called draco marinus, which is supposed to contain some venomous qualities in the spines of its dorsal bone.

ARARAUNA. A name given by Marcgrave to a Brazilian bird of the macaw kind, but of a different colour. The bill is black, and the eyes are a fine sky blue, with black pupils: the skin round the eyes is marked with black and white spots; and the legs and feet are brown. On the fore-part of the head is a kind of cap, consisting of fine green plumage; and, under the throat, a circle of black feathers. The sides of the neck, the breast, and the lower part of the belly, are yellow: but the hinder part of the head, as well as the neck, back, and wings, are all blue; except that the extremity of the latter is mixed with yellow. The tail is beautifully intermixed with long blue and yellow feathers, but in general all the external blue feathers are internally black.

ARCÆ, or ARKS. A family of shells of the bivalve kind, sometimes called boats, having their hinges on a perfect straight line, and being of a somewhat squarish figure, or rather oblong, like the Noah's Arks and square cockles.

Conchologists assign different ranks to the Arks: Lister inserts them among the multarticulate cockles; placing the Noah's Arks among the muscles, as many-toothed muscles. Woodward ranks them among his polyginglymi forma oblonga; Argenville places them in his fourth family, or that of heart-cockles; Davila makes them a distinct genus of his fourth family, or heart-cockles, and gives them the name of Arks; and Linnæus ranks them as a distinct genus, and calls them Arca. This family, however, contains but a very few species.

ARCHITALASSUS. A name given by some authors to that beautiful and precious shell-called by us the admiral.

ARCTIC BIRD, AMERICAN. This bird is somewhat larger than a tame pigeon, and has a bill compressed sideways, hooked at the point, with a nail at the extremity, which is separated from the other part by a cross furrow. The top of the head is blackish, and the sides of the head, the throat, neck, breast, and belly, are white; but the legs and lower-belly are cinereous. The lower part of the neck behind, as well as the whole back, wings, and tail, are likewise of a dark cinereous colour. The tail-feathers are shortest on the sides, and gradually in-

crease in length to the two centre ones; which are very considerably longer, and resemble those of a man-of-war bird. The legs, which appear weak, are bare of feathers above the knees, and of a bright yellow colour. The feet are black, and the three forward toes are webbed like those of a duck. This bird is a native of Hudson's Bay; and Edwards considers it as a distinct species.

ARDEA. A genus of the order of grallæ, belonging to the class of aves, in the Linnæan system: its distinguishing characters are, that the beak is straight, acute, long, and compressed; a sulcus or furrow passing from the nostrils, which are linear, to the apex; and the feet are furnished with four toes. Linnæus enumerates twenty-six species of this genus.

ARDEOLA. A very beautiful Brazilian bird of the heron kind, but not larger than a pigeon.

ARENARIA. A bird usually known in England by the name of the fanderling, and in some places, particularly in Cornwall, by that of the cur-willet. It is a water-bird of the long-legged, open-footed kind, and is a size larger than the tringa minor, or sand-piper. This species frequents the sea-shore, and flies about in large flocks.

ARGENT AND SABLE. A very curious white moth beautifully chequered and spotted with black; the expansion of the wings being about an inch and a half. The caterpillar feeds on white-thorn, and changes to a chrysalis about the first week in May; but both the caterpillar and chrysalis are so exceedingly scarce, that the most inquisitive aurelian has never been able to discover either of them; and, indeed, the moth itself is seldom seen in this country. It seems to be a native of the woods, or lanes, where it is sometimes caught about the beginning of June. In some particular seasons this admired insect is found in great plenty, and seems to breed with amazing fecundity; but then the species again become extremely scarce, and several years elapse before they are again seen in any numbers.

ARGENTINA. The name of a genus of fish of the malacopterigious kind; and, in the Linnæan system, of the order of abdominales; the characters of which, according to Artedi's definition, are these: the body is oblong and cylindric; and the teeth are placed on the tongue and palate. There appears, however, from the same author, to be only one species of this genus, which is furnished with large eyes, and a bifid tail, and is caught on several of the Italian shores. Ray describes the Argentina to be a small fish of the larengiform kind, caught in the Mediterranean, and common in the markets of Rome. This fish, which has sometimes been caught on the British coast, is about three inches long; the eyes are large, and the irides silvery. The lower-jaw has a considerable slope; the teeth are very small; the body is compressed, and almost of an equal depth to the anal fin; and the tail is forked. The back is of a dusky green colour; and the sides and coverts of the gills appear as if overlaid with silver. On each side of the belly is a row of circular punctures; and above them there is another which terminates near the vent.

ARGONAUTA. A genus of worms of the testacea order; the animal of which is a sepia; and the shell is univalve, spiral, membranaceous, and single-celled. There are only two species of this genus.

ARGUS. An animal of Iceland, remarkable for its number of eyes, and in that country called ofcabicorn.

of scabicorn. It appears to be of the testaceous kind; of an oblong form, resembling a crab's tail, and about an inch and a half in length.

ARINGA. A name applied by several naturalists to the herring.

ARMADILLO. The name of an animal somewhat approaching to the hedge-hog kind, called by Latin authors the *echinus Brasilensis*; and, by Linnæus, *dasypus cingulis novem, palmis tetradactylis plantis pentadactylis*.

Nature presents us with several species of this genus; all of which, after a general history of the kind, it will be proper to describe.

The Armadillo, which is an inhabitant of South America, is a peaceful harmless creature, incapable of injuring any other quadruped, and furnished with a peculiar covering for its own defence. Possessed of no power of repelling external assaults, the Armadillo is obliged to submit to every insult; it is attacked without danger, and consequently liable to various persecutions.

The Armadillo is covered, like a tortoise, with a shell, or rather a number of shells, which prevent its true proportions from being immediately discerned. At first view, it appears a round, misshapen mass; with a long head, and a very large tail, sticking out at either end, as if unconnected with the rest of the body. It is of different sizes, from one to three feet long; and covered with a shell, divided into several pieces, and folding over each other, like the tail of a lobster. The difference in the size of this animal, and also the different dispositions, as well as the numbers of its plates, have been generally considered as constituting so many distinct species, to which suitable names are given. In all, however, the animal is clothed with this partial coat of mail; the conformation of which affords one of the greatest curiosities in the ample field of nature.

This shell, which in every respect resembles a bony substance, covers the head, the neck, the back, the sides, and the rump, as well as the tail, which is armed to its very extremity. Indeed, the only parts uncovered with this invulnerable mail are the throat, breast, and belly; and even these, which appear covered with a white skin resembling that of a fowl when stripped of its feathers, are in fact clothed with shells in an incipient state, of the same substance as those on the back. The skin, therefore, in the softest parts, seems to have a strong tendency to ossification; but a complete ossification takes place only on those parts which have the smallest degree of friction, and are the most exposed to external injuries. The shell which covers the upper part of the body differs from that of the tortoise, being composed of more parts than one, which lie in bands over the body; and, as in the tail of the lobster, slide over each other, being connected by a yellow membrane. This gives the animal a motion in its back, and accommodates the armour to every necessary inflexion. The bands are of various numbers and proportions: in general, however, there are two large pieces, one covering the shoulders, and the other the rump. Between these, on the back, the bands are placed in different numbers, which fold over each other, and communicate motion to the whole. Besides their opening across, they also open straight along the back, so that the animal is enabled to move in all directions. In one species there are three of these bands; in another, six; in a third, eight; in a fourth, nine; in a fifth, twelve; and, in a sixth, eighteen. The

shells are variously coloured in different kinds, but usually they are of a dirty grey, or rather sand-colour: and these hues, in all of them, arise from another peculiar circumstance in their conformation; the shell itself being covered with a softish skin, which is smooth and transparent.

But though these shells may well defend the animal from a feeble enemy, they can make but a slight resistance against any powerful opponent: nature has, therefore, given the Armadillo the same means of protecting itself as that with which it has endued the hedge-hog and the pangolin; for, the instant it perceives itself attacked, it withdraws its head under its shells, leaving no part visible but the tip of its nose; and, if the danger increases, the animal's precautions being exerted in proportion, it tucks up its feet under its belly, unites its two extremities together, the tail appearing like a band to strengthen the connection; and, thus rolled up, becomes a sort of ball somewhat flattened on each side. In this condition it remains till its fears have wholly subsided; and it is often tossed about at the pleasure of other animals, having little or no appearance of life or motion. Whenever the Indians catch it, which is always in this form, they lay it close to the fire, till the poor animal is obliged to expand itself; and thus submits to its fate.

Before the discovery of America, the Armadillo was entirely unknown; nor does the old world appear to contain a single species of these extraordinary creatures. They are extremely mild and inoffensive; unless by accident they find their way into a garden, where they destroy the choicest fruits and vegetable productions. Though they are natives of the warmest parts of America, they bear the severity of colder climates without any apparent injury, and are often exhibited among our collections of wild beasts. Their motion seems to be a quick walk, but they can neither run, leap, nor climb up trees; so that if they are once found in an open place, they have no possible means of escaping. In this extremity, they commonly make towards their holes as fast as possible; or, that being impracticable, dig a new hole before the enemy arrives. For the performance of this business a few moments are generally sufficient, as they burrow with all the expedition of a mole; being furnished with claws, extremely large, strong, and crooked, and usually four on each foot. They are sometimes caught by the tail, as they are making their way into the earth; but such is their resistance, and so difficult is it to draw them back, that if any great force is exerted, they readily leave their tails in the hands of their enemies. The pursuers, sensible of this, seldom pull their tails violently, but only hold them while another digs the surrounding earth, and then the animals are caught alive. The instant the Armadillo perceives itself in the power of its enemies, its last resource is to roll itself up, and thus patiently wait whatever tortures the cruel captor thinks proper to inflict. The flesh of the smaller species is said to be very delicate food, so that we may naturally suppose they receive little mercy: they are, indeed, pursued with unceasing industry; and, though they burrow very deep in the earth, many expedients have been adopted to force them out; sometimes by contriving to fill the hole with smoke, and at others by overwhelming them with a deluge of water. A small species of dogs are also bred to the chase of these animals, which quickly overtake them, if they happen to be at any distance from their burrows, and oblige them to roll themselves

selves into a ball, when they are immediately picked up. If, however, they be near a precipice, they often escape by rolling themselves up, and devolving from rock to rock; and this they can do without the smallest degree of danger or inconvenience. They are sometimes caught in snares placed by the sides of rivers, and low moist grounds, which they generally frequent; and this mode commonly succeeds better than either of the former, as their burrows are very deep, and they seldom quit them till night. Indeed, they never venture far from their retreats, so that it requires both patience and skill to intercept them on their way.

Almost every species turn up the ground like the hog in search of roots, which constitute a principal part of their food: they live also on melons, and other succulent vegetables, and will eat flesh when they can procure it. They likewise prey on worms, small fish, and water-insects.

In the larger species, the shell is much more solid than in the small ones, and the flesh harder and more unfavoury. Those, too, generally reside in dry upland grounds; while the small species are always found in moist places, and in the vicinity of brooks and rivers. Though all roll themselves up into balls, those which are furnished with the smallest number of bands find the greatest difficulty in doing this compleatly. The Tatu Apara, or Six-banded Armadillo, for instance, when rolled up, presents two great interstices between it's bands, where it is easily vulnerable, and of course liable to external injury from the meanest quadruped.

Between this animal and the rattle-snake the closest friendship is said to subsist; and they are reported to live peaceably and commodiously together, being often tenants of the same subterraneous retreat. This, however, may probably be a friendship of necessity; the rattle-snake taking possession of the Armadillo's hole, which neither is willing to quit while there is an impossibility of their injuring one another.

The plates of the Armadillo's shell, powdered, and administered in doses of a drachm, are esteemed sudorific; and, as some assert, constitute a powerful remedy for the lues venerea.

ARMADILLO, THREE-BANDED, or the **TATU APARA**, has short broad rounded ears; and the crust on the head, back, and rump, is divided into elegant pentangular tuberculated segments. In the middle are three bands; on each foot five toes; and the tail is extremely short, being no more than two inches long, though the shell, taking all the pieces together, is eighteen inches broad. This animal grows extremely fat; and, when young, is esteemed delicious food: but, with age, it acquires a rank, musky taste, which renders it's flesh absolutely nauseous. It breeds every month, and brings forth four at a time.

ARMADILLO, SIX-BANDED, or the **ENCORIBERT** of Buffon, is distinguished by having six bands across the back; between which, and also on the neck and belly, are a few scattered hairs. The crust on the head, shoulders, and rump, is formed of angular pieces; the tail being very thick at the base, and tapering to a point; and there are five toes on each foot. This species inhabits Brazil and Guiana.

ARMADILLO, EIGHT-BANDED, or the **TATUETTE**, is furnished with eight bands. It's body, from the nose to the insertion of the tail, is about ten inches long, and the tail is seven. The ears are erect, and

two inches long; and the eyes are small and black. The fore-feet have four toes, and there are five on the hind ones. It inhabits Brazil; and it's flesh is reckoned the most delicious of the whole genus.

ARMADILLO, NINE-BANDED, or the **CACHIC-HAME** of Buffon, is about two feet long from the nose to the tail. The ears are long; and the crust on the head, shoulders, and rump, is marked with hexangular figures: on the sides are nine bands, distinguished by transverse marks; and the breast and belly are covered with long hairs. The fore-feet have only four toes, but there are five on the hind ones; and the tail, which is long and taper, exceeds the whole body in length. There is a specimen in the Leverian Museum, which agrees with this description, except that the crusts on the head, and other parts of the body, are covered with large scales not angularly formed.

ARMADILLO, TWELVE-BANDED, or the **KABASOU** of Buffon, is the largest animal of the whole genus. The body is near three feet long, and the tail about eighteen inches. The ears are broad and erect; the crust on the shoulders is marked with oblong pieces, that on the rump being hexangular; on the sides are twelve bands; and all the feet have five toes each. The tail tapers to a point, and there are a few hairs scattered over the body.

Buffon mentions another Armadillo with Twelve Bands, having it's tail covered with rhomboidal figures; from which dissimilarity he seems doubtful whether it ought to be referred to the same species.

ARMADILLO, EIGHTEEN-BANDED, or the **CIRQUEÇON** of Buffon, has a very slender head, with small erect ears; and the crust on the rump and shoulders is composed of quadrangular pieces. The bands on the sides are eighteen in number; and the length of the animal, from the nose to the insertion of the tail, is about fifteen inches. This species likewise inhabits South America.

ARQUATA. The name of a bird called also by some naturalists *cumenius*; and usually known in England by that of the curlew. The flesh of the Arquata is esteemed very delicious. The male is somewhat smaller than the female; and is called the jack-curlew.

ARQUATA MINOR. An appellation which some authors have given to the bird known in England by the name of the wimbrel.

ARRARACANGA. A bird resembling the maccaw. It is about the size of a raven, with a large head, flat and broad on the upper part. The eyes are beautiful, and of a sky-blue colour, with a black pupil; the bill is large and aduncated, being white above, and black underneath; the tongue is like that of a parrot; and the feet and legs, which are black, are also formed in the same manner as the parrot's. The head, neck, breast, belly, and thighs, as well as part of the tail, and the beginning of the wings, are covered with the most brilliant red feathers; but the middle part of the wings is green, and the rest blue. The extremity of the back towards the rump is covered with blue feathers, mixed with some others of a brownish cast; and the tail is about three inches long. The Arraracanga, like the parrot, is capable of being taught to pronounce a few words, and feeds in the same manner.

ARTENNA. A water-bird of the size of a hen; of a brownish colour on the back, and white on the belly. It's bill is hooked; and the three fore-toes are connected by a membrane; but the hinder

one is loose. It is a native of the Island Tremiti, in the Adriatic Sea; and is generally conjectured to be the avis diomedis of antiquity.

ARU, or KARA. A bird of the penguin or hawk kind. It is larger than a duck; it's head, neck, and back, are black; it's bill is long, straight, black, and sharp; it's legs are black, with a cast of red; it has three black toes; and is web-footed. Great numbers of these birds are found on the rocky islands of Kamtschatka. The inhabitants kill them for the sake of their flesh, though tough and ill-tasted; but more for their skins, of which they make themselves garments. The eggs of the Aru are esteemed a great delicacy.

ASCARIDES. A class of worms of a slender filiform body, attenuated at each end; and ranged by Linnæus among the vermes intestinæ. These worms are chiefly found in the intestinum rectum of children; are frequently voided with the fæces; and occasion a perpetual motion in the intestines, and an intolerable itching.

The Ascarides, however, are not so dangerous as many other worms; but, for several reasons, they are more difficult to be expelled: their situation is so remote from the stomach, that medicines generally lose their effects before they can reach them; they are lodged in a viscous humour, which repels and prevents the operation of applications; and they sometimes ascend into the cæcum, where they remain entrenched in perfect security.

Ascarides is also a name used by Reaumur to denote a sort of small worms, or maggots, bred from the eggs of winged animals; and which, burying themselves between the membranes of the leaves of plants, consume the parenchymatous substance.

Small as these Ascarides in general are, they nevertheless exhibit the proper characters by which they may be reduced to regular classes: those which derive their origin from the eggs of butterflies are truly and properly caterpillars in miniature; the maggots from flies form a second class; and the Ascarides of beetles, which change to hexapode worms, a third.

With respect to the minute caterpillars, some are furnished with sixteen feet, while others have only fourteen; some are perfectly smooth and equal all over the body, while others have a number of rings or annular divisions like the larger caterpillar. Their several changes, however, before they arrive at the fly state, are the same with those of the common silk-worm, and other species of large caterpillars. The Ascarides of the parent butterfly are deposited singly, only one being placed on each leaf; for the small caterpillar is of a solitary nature. These eggs are so minute as to be scarcely perceptible: Reaumur, however, not only discovered them lying on the leaves of plants, but also traced them to their time of hatching. This accurate observer took notice that the caterpillar never enjoys the light, or free air: for, as soon as it is hatched, it eats it's way through the integuments of the leaf; and, under the cover of it's shell, buries itself among the parenchymatous matter, from whence it never stirs till it arrives at it's winged state.

The worms hatched from the eggs of flies make their way as speedily into the substance of the leaf as the minute caterpillars: but the latter eat their way through the leaf with their teeth; while the former continue striking their heads forcibly against it till they compleat a perforation large enough to admit their whole bodies, when they feed on the parenchyma of the leaf, in the same manner as the cater-

pillars, till they finally change into their chrysalis state within the covert of the membrane of the leaf.

The last kind of Ascarides, which eventually become beetles, make their way into the substance of the leaf after the same manner as the preceding; and, when they have fed on it's parenchyma and juices throughout their stated time, they sometimes change in the covering of the membrane, and at others come out of their holes, as if preferring the surface of the leaf for that purpose.

ASCHIA. Another name for the grayling.

ASCIDIA. A genus of worms belonging to the mollusca class in the Linnæan system of arrangement, and comprehending six species. The body, which is brown, is fixed to a shell, rock, or some other hard substance; and it is furnished with two apertures; one on the summit, and the other somewhat lower, forming a sheath. The extremities are generally scabrous; the middle part being smooth, and the lower flat. Animals of this genus possess the faculty of squirting out the water they have imbibed.

ASELLUS. The classical name for a genus of fish including the cod and the whiting; and of which naturalists enumerate several species.

ASILUS. A name given by some naturalists to the luteola, or regulus non cristatus; an extremely small bird, which commonly frequents willow-trees.

ASILUS. The classical name of a genus of insects belonging to the diptera of Linnæus, and comprehending seventeen species.

This genus, which comprehends the hornet-fly or wasp-fly, has these characteristics: the insect is bipennated; and has a style, or oblong body, terminated by a protuberance, called a balancer, under each wing: the head is furnished with a snout or beak of a subulated figure, which is very sharp at the extremity.

Some naturalists have bestowed on these insects the appellations of muscæ crabroniformes, muscæ rapaces, and muscæ vespiformes.

ASINUS PISCIS. A name sometimes given to the æglefinus, or common haddock, called also onos.

ASIO. A name by which Aldrovandus, and other naturalists, express the otus, or lesser-horned owl.

ASKER. A provincial appellation for the water-newt, or eft.

ASOTUS. A species of the silurus.

ASP. A species of venomous serpent, the bite of which is said to occasion a speedy, but gentle death; on which account Cleopatra put a period to her existence by the application of these reptiles to her bosom, when victory declared against Mark Anthony at the battle of Actium.

The Asp is frequently mentioned by ancient historians; but their descriptions are so vague and uncertain, that it is difficult to determine what known species may at present be so called. The word is undoubtedly derived from Aspis, a Shield; because the creature lies convolved in a circle, in the centre of which it exerts or raises it's head like the umbo of a buckler.

Some authors describe the Asp as being about the size of a common snake; except that the back is broader, and the neck capable of a vast inflation when the creature is incensed. It's teeth are also said to be exceedingly long, and to stand out of it's mouth like those of a boar; but this we may fairly assert to be fabulous, though mentioned by several naturalists

naturalists as a peculiarity of the species. It is probable, however, that two of it's longest teeth are hollow; that the venom emitted by the Asp flows from them; and that they are covered with thin pellicles, which slide downwards when the serpent is disposed to bite. The skin of the Asp is said to be covered with scales, but naturalists are by no means agreed on the colour. Some reckon the Asp two cubits long; other four, or five; and Kolben affirms that he has often seen it several ells in length. From this diversity of opinion, we are not warranted to decide: it is, however, unquestionably a native of Africa, and appears to have been well known to the ancients.

Lord Bacon asserts, that the bite of the Asp is the least painful of all the instruments of death; and supposes it's poison to have some affinity to opium, but to be less disagreeable in it's operation. This, however, does not well accord with the descriptions of the symptoms given by Dioscorides and others; who assert that, immediately after the bite, the sight becomes dim, a sensible tumour arises, and a moderate pain is felt in the stomach. Matthiolus says, that the bite is followed by a stupor of the whole body; with paleness, coldness of the temples, continual yawning, a nictitation of the eye-lids, an inclination of the neck, a heaviness of the head, an irrecoverable sleep, and, lastly, convulsions.

Aristotle informs us, that the bite of the Asp admits of no remedy; and Pliny and Egineta confirm this opinion, in cases where an amputation of the part cannot be effected. Others, however, recommend cicatrizing the wound, together with the internal use of hot alexipharmic medicines.

From some particular parts of this formidable serpent, the ancients made a plaister, of singular efficacy, as a discutient of strumæ, and other indurations; and which was likewise beneficial in arthritic complaints. The flesh and exuvæ of this animal were likewise admitted into the ancient materia medica.

ASPIUS. A species of the cyprinus, belonging to the abdominal order of fishes, and commonly found in the lakes of Sweden.

ASS. A well-known quadruped; which, from it's great resemblance to the horse, might naturally enough be supposed to be of the same species, and only somewhat degenerated from that noble animal: the species, however, are perfectly distinct; and there is an inseparable line drawn between them, the animal produced from the mixture of a horse and an ass being barren. This, indeed, seems to be the barrier between every species of animals, which keeps them asunder, and preserves the unities of their forms. If the mule or monster bred between two animals whose forms nearly approach each other, is no longer fertile, we may then conclude that these animals, whatever external similitude may appear between them, are certainly distinct and separate kinds. Nature, which always provides for the perfection and preservation of her productions, has wisely stopped the fecundity of these ill-formed productions, in order to preserve the form of every animal uncontaminated: were not this the case, the different species of animals would soon be blended with each other; no one kind would preserve it's original perfection; every creature would quickly degenerate; and the world would inevitably be over-run with productions alike monstrous and deformed.

The horse and the Ass, though they somewhat

resemble each other, are nevertheless of two distinct kinds, and very different in their natures, tempers, and habits. Their shapes and manners may, indeed, possess a considerable degree of similarity; but there is something in every animal, besides it's conformation and way of life, which determines it's specific nature. Thus, between the horse and the Ass there is a much stronger resemblance than between the goat and the sheep; and yet the latter produce an animal capable of re-producing an offspring resembling the sheep, while the mule of the former is marked with certain sterility. The goat and the sheep may, therefore, be said to be of one species, though so unlike in figure; while the horse and the Ass are perfectly distinct, notwithstanding they are so nearly allied in conformation. It has, indeed, been asserted by Aristotle, that their males are sometimes prolific; but this assertion has never yet been confirmed by any positive testimony, though a period of near two thousand years has elapsed since it was first advanced. On the contrary, it is an indisputable fact, that the two animals, even in a state of nature, are found to be entirely different. The wild Ass is seen in still greater abundance than the wild horse; and the peculiarities of it's kind are more distinctly marked than in those of the tame one. Were the Ass only a horse degenerated, the likeness would be stronger between them the nearer we approached to the original stock from which both have been supposed to spring. In such a case, the wild animals of both kinds would resemble each other much more than the tame ones, on whom Art has, for a succession of ages, been exerting all her force, in producing foreign habits and alterations. The contrary, however, is apparent: and the wild Ass has not only fewer properties of the horse than that which is bred in a state of domestic servitude; but even discovers a natural aversion to this noble animal.

The wild Ass, or koulan, has by some writers been confounded with the zebra, though it is certainly of a very different species. The wild Ass is not streaked like the zebra, nor is it's shape so beautiful. It's forehead is more arched than in the common breed; it's ears are always erect, sharp-pointed, and lined with whitish curling hairs; the irides are of a livid brown colour; the lips are thick; and the extremity of the nose is extremely sloping down to the upper-lip. It is also much higher than the common Ass, and it's legs are finer; but it resembles that animal in the narrowness of it's chest and body: it carries it's head, however, much higher, and it's skull is amazingly thick and strong. The mane is composed of a soft woolly dusky hair, about three or four inches long, and extends quite to the shoulders; and the hairs at the extremity of the tail are coarse, and about a span long. It's colour in general is a fine silvery white: the superior part of the face, the sides of the neck and body, being of a flaxen hue; the hind-parts of the thighs of the same colour, while the fore-parts are divided from the flank by a white line, which extends round the rump to the tail; the belly and legs are also white; and along the very ridge of the back, from the mane quite to the tail, there runs a stripe of bushy waved hairs of a darkish colour, another of the same hue crossing it at the shoulders of the males, and forming a mark similar to that in the tame or common Ass.

It's winter coat, which is very fine, soft, silky, and much undulated, nearly resembles the hair of
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the camel, being unctuous to the touch; and the flaxen colour, during that season, becomes more exquisitely bright. The head of the male koulán, or wild Ass, is two feet long; from the beginning of the neck to the insertion of the tail, is four feet eleven inches; the tail is about two feet and a half; and the ears are near a foot long. It's height before is upwards of four feet; and, behind, near four feet six inches. Such is the colour and conformation of this animal in a wild state, in which it is often found in many islands of the Archipelago; particularly that of Ceugo; but more frequently in the dry and mountainous parts of Great Tartary. There are also many wild Asses in the deserts of Lybia and Numidia, which run with such amazing celerity, that even the couriers of that country can but seldom overtake them. Whenever they espy their pursuers, they set up a horrid braying; and, stopping short till the nearer approach of their enemies, they fly off with the utmost speed; and, on such occasions, generally fall into traps which have been previously prepared for them. The natives hunt them both for their flesh and their skins: the former they esteem very delicious food; and of the latter they compose that manufacture which is known by the name of shagreen. That part of the hide which is chiefly used for this purpose, grows near the rump of the animal; but it is artificially granulated. In Persia, this manufacture is regarded as of considerable importance; and the natives of that country esteem the bile of the wild Ass a specific against dimness of sight.

Olearius relates, that a Persian monarch once invited him to an entertainment of a very peculiar nature, which was exhibited in a small structure near the palace, constructed in the form of an amphitheatre: after a collation of fruits and sweetmeats, upwards of thirty wild Asses were driven into the area, among whom the monarch discharged several arrows, in which he was imitated by the rest of his attendants. The Asses, perceiving themselves wounded, and unable to escape, instantly began to attack each other, biting with great ferocity, and braying in the most hideous manner: the arrows, however, continuing to be poured in from above, the Asses were all soon dispatched; and, being ordered to be carried off, were conveyed to the king's kitchen at Isfahan.

The Persians so highly esteem the flesh of this animal, that it's delicacy is even become proverbial among them. When fresh killed, it is hot and unfavoury; but, being kept some time after it is boiled, it becomes excellent food. The flesh of the tame Ass, however, is more dry, tough, and disagreeable, than even that of the horse; and, according to Galen, it is very unwholesome.

We should not, however, hastily decide on the different tastes of different people, respecting the preference they give to certain kinds of food. The climate produces very considerable changes in the tenderness and flavour of several viands: beef, for instance, which is so excellent in England, is extremely tough and dry when killed under the line; pork, on the contrary, which with us is, so unpalatable during the summer months, is in the warmer latitudes, the finest eating imaginable, and infinitely superior to any European hog's flesh.

Before the discovery of America, the Ass seems to have been entirely unknown on that continent, though the climate is peculiarly favourable to that race of animals; and where they have been permitted to run wild, they multiply so quick, that in

some places they are become a nuisance. In the kingdom of Quito, the owners of the ground where they breed suffer any person to take away as many as he can, on paying a small consideration, in proportion to the number of days employed in securing them. On these occasions the following method is adopted.

A number of whites on horseback, attended by Indians on foot, proceed to the spots where the Asses are known to frequent; and, forming a circle, drive them into some valley: when, throwing the noose as they ride at full speed, they endeavour to halter them. The animals, finding themselves inclosed, make very furious efforts to procure their enlargement; and if only a single one forces his way through, the rest follow with irresistible impetuosity. When an Ass is noosed, the hunters throw it down, and secure it with fetters, leaving it in this state while they pursue others: and, the sport being ended, in order to bring away what they have caught with the greater facility, they generally couple them with tame animals of the same species. This, however, is no very easy task; as they are so remarkably fierce that they often wound the persons who undertake to manage them. They are nearly as swift as horses, and neither declivities nor precipices can retard their progress. They defend themselves so actively with their heels and mouths, that they wound their pursuers, even while they continue their flight. But, notwithstanding their wildness, after carrying the first load, their celerity ceases; their dangerous ferocity is no more; and they soon contract that dull aspect which is so peculiar to the asinine species. These animals always feed together; and, if a horse happens to intrude himself into their society, they usually bite and kick him till they leave him dead on the field.

Thus it obviously appears that the Ass is naturally swift, fierce, and formidable; but, when tamed, it presents a very different picture. The moment it's original liberty is lost, it seems to relinquish every claim to freedom, and assumes a meekness and submission even humbler than it's servile situation. It is now the most patient and gentle of all domesticated animals; and suffers with constancy, and perhaps with courage, all the ill-treatment which cruelty and caprice undeservedly inflict. It is extremely temperate, as well with respect to the quantity as the quality of it's provisions; being satisfied with the most neglected weeds, and making it's humble repast on the refuse of the horse and other animals. If it gives the preference to any vegetable, it seems to be the plantane, for which it is often observed to neglect other herbs. But, notwithstanding this apparent indifference as to food, it is peculiarly delicate in it's water, drinking only at the clearest brooks. It is, in fact, a pattern of abstemiousness, both in drinking and eating; nor does it ever dip it's nose in the stream, as is the practice of the horse. Being seldom saddled, it frequently rolls itself on the grass; and lies down for this purpose whenever opportunity permits, without regarding it's burden. It is, extremely averse to water, never rolls in the mud like the horse, and constantly turns out of it's way to avoid the dirty parts of a road.

In it's juvenile state, the Ass is sprightly, and even beautiful; but it soon loses these qualifications either by age or injurious treatment, and becomes slow, stupid, and obstinate. It seems to evince no ardour; except only that the male is so extremely libidinous, that he has been known to drop down dead

dead immediately after copulation; and that the female is as strongly attached to her young as the male is to her, not being deterred, either by fire or water, from protecting her foal. The Afs is remarkably partial to its owner, by whom it is too often abused: it scents him at a considerable distance; distinguishes him from others in a crowd; and seems to know the roads he has passed, as well as the place he inhabits. When overloaded, it shews the tyrant's injustice by hanging down its head, and lowering its ears; and, when too hard pressed, it opens its mouth, and draws back its lips, after a very disagreeable manner. If its eyes are blinded, it immediately becomes motionless; and, on being laid down so that one eye is concealed in the grass, while the other is covered with a stone, or any other article, it will continue fixed in the same situation, without attempting to rise, or free itself from these slight impediments. It walks, trots, and gallops, like a horse; but, though it sets out very freely, it is soon weary, and no corporeal inflictions are then capable of making it mend its pace. In vain does the unmerciful rider exert his whip, or his cudgel: the poor animal patiently endures it all; and, as if conscious of its own imbecillity, and of the inefficacy of resistance, does not even attempt to move.

But, notwithstanding the natural stupidity of this animal, it is capable of being trained with the same facility as most other quadrupeds; and several Affes have been rendered sufficiently sagacious and active to be exhibited as public spectacles. It is, however, the misfortune of this humble and useful animal, to be despised by man; though its efforts are exerted to please him, and its services are so cheaply purchased. The horse is the only favourite; and on him all expence and labour are bestowed: he is fed, attended, and stabled; while the Afs is abandoned to the inhumanity of the lowest rustics, or even to the barbarous sport of children; and, instead of gaining by the lessons it receives, is always a loser. It is forced along by blows; insulted with unnecessary stripes; and overloaded by indolence: and, as it falls generally to the lot of the poor, it largely participates in their wants and distresses. Thus this faithful animal, which would undoubtedly be the first of the quadruped kind, were there no horse, is considered as of little value: all its properties and qualifications being found elsewhere in a higher degree, the creature is entirely disregarded; and, from being naturally the second in the scale of utility, is degraded into the most insignificant of all domestic quadrupeds.

Hence so very little attention has been paid to the improvement of the breed, that it has been suffered to degenerate; and it appears highly probable that the Afs, of all other animals, is the most enfeebled, and rendered most diminutive, by being in a state of domestic servitude. The horse, the cow, and the sheep, are rendered larger by the skill and assiduity of man; while the Afs is permitted to dwindle in every generation. Indeed, it is with us so little valued, that the whole species would probably have been long since extinct, if the medicinal qualities of its milk had not tempted the avarice of mankind to continue the breed. This salutary liquid is in some cases esteemed the most sovereign, as well as the most innocent, of all prescriptions: it is extremely nourishing and abstergent, and therefore highly valued in hectic complaints, in disorders of the stomach, abscesses of the kidneys, the stone in the bladder, and arthritic

pains. It appears to be gently cathartic, and was frequently directed by Hippocrates to be used in large quantities where moderate purging was necessary. When applied as a topic, it renders the gums firm, alleviates arthritic pains, and gives the face an agreeable whiteness.

Were there as much care bestowed on the Afs as commonly falls to the share of the horse, and were the same industry used in crossing the breed and improving it, there is great reason to suppose that we should soon see the Afs emerge from its present humble state, and become a very respectable and useful animal, frequently rivalling the horse in some of its qualities, and even exceeding him in others. In proportion to their respective magnitudes, the Afs is considerably stronger than the horse; surer-footed; and, though slower in its motions, much less apt to start out of the way.

The Spaniards seem to be better acquainted with the nature of the Afs than any other nation in Europe; and, as they use every necessary precaution to improve the breed in Spain, it is no unusual thing to meet with an animal of this species full fifteen hands high.

The Afs seems to have been originally a native of Arabia, and other parts of the east; and warm climates still produce the largest and best. Their size and spirit both evidently decline on their removal into colder regions. 'With difficulty,' says Mr. Adanson, speaking of the Affes of Senegal, 'did I know this animal, so different did it appear from those of Europe: the hair was fine, and of a bright mouse colour; and the black list, which crosses the back and shoulders, had a fine effect.' These were the Affes brought by the Moors from the interior parts of the country.

The emigration of the Afs has been very slow; and, though it is now so common in all parts of these islands, the breed was entirely lost among us during the reign of Elizabeth. Holingshed informs us that, in his time, 'our lande did yeelde no Affes.' But we are not to suppose that such useful animals were unknown in these kingdoms before that period; for mention is made of them so early as the reign of King Ethelred, above four hundred years before; and again in the reign of Henry III. so that the breed must have been unaccountably lost during the reign of Elizabeth. At what period it was again introduced, is not certain; but it was probably in the succeeding reign, when our intercourse with Spain was renewed, where this animal was then much used, as well as at present. In Sweden, the Afs appears to be a kind of rarity; nor does it appear, from the most recent history of Norway, that it has yet reached that country: while, in Guinea, it is larger, as well as more beautiful, than even the horse of the same country. In Persia, there are two kinds of Affes: one of which, used for burdens, is slow and heavy; the other, which is kept for the saddle, being stately, and nimble. They are managed in the same manner as horses; except that the rider sits nearer the crupper: and, like them, they are taught to amble. Their nostrils are generally enlarged, in order to allow them more room for breathing; and one of them is frequently fold for forty or fifty pounds.

The Afs is not only more hardy than the horse, but liable to fewer diseases; and it is less subject to be infested with vermin than any other hairy animal; probably on account of the dryness and hardness of its skin. Like the horse, it takes three

or four years in arriving at a state of perfection; and frequently lives to the age of twenty or twenty-five. It sleeps very little, and never lies down for that purpose, till quite worn out with fatigue. The female goes above eleven months with young, and never brings forth more than one at a time. The mule may be engendered between a stallion and an Afs, or between an Afs and a mare; but the latter breed is every way preferable, being both larger, stronger, and better shaped. It is not as yet certain whether the animal called the gimerro be one of these kinds; or, as is usually asserted, bred between the Afs and the bull. While naturalists, however, contend for the impossibility of this admixture, the natives of the Alpine countries, where this animal is bred, as strongly insist on it's reality. The common mule is very healthy, will live about thirty years, and is extremely serviceable in carrying burdens; particularly in mountainous and stony places where horses are scarcely capable of walking. The size and strength of our Asses, however, is at present greatly improved by the importation of Spanish Jack or male Asses: and, with care and attention, we might in time equal the Spaniards themselves in breeding them.

Asses, indeed, seem now perfectly naturalized in this country: the climate and soil appear perfectly to agree with them; and their utility daily becomes more and more evident. Being now introduced into many drudgeries formerly allotted to horses, they are very serviceable in saving those noble animals for higher purposes. Many of our richest mines are in situations almost inaccessible to horses; where these sure-footed animals are employed to advantage in conveying our mineral treasures from one place to another. We may also add that, since our horses are become a considerable article of commerce, and bring great sums annually into these kingdoms, the improvement of an animal which will in many instances supply the place of the horse, as well as enable us to enlarge our exports, certainly demands the attention of every well-wisher to his country.

ASTERIA. A name by which some authors have distinguished the accipiter palumbarius, or goshawk.

ASTERIAS, or SEA STAR. A genus of shapeless and deformed worms, forming a numerous tribe, and which assume different appearances at different periods. The same animal which at one time appears round like a ball, very soon after flattens as thin as a plate. All insects of this kind are formed of a semi-transparent gelatinous substance, covered with a thin membrane; and, to an inattentive spectator, often appear like a lump of inanimate jelly, floating at random on the surface of the sea, as if casually thrown ashore at the departure of the tide: but, on a more minute inspection, they are found to be possessed of life and motion. They are seen shooting out their arms in every direction, in order to seize on such objects as are within their reach, which they devour with great rapacity. Worms, the spawn of fish, and even muscles themselves, with their hard resisting shells, have been found in the stomachs of these voracious creatures; and, what is more extraordinary, though the substance of their own bodies be almost as soft as water, they are in no respect injured by swallowing these shells, which are almost of a stony hardness. In summer, when the water of the sea is warmed by the heat of the sun, they float on the surface; and in the night-time they emit a kind of

luminous effluvia, resembling that of phosphorus. Some naturalists have given these animals the names of sea-nettles, because they irritate the hands of those who touch them, after the manner of those weeds. They are often found affixed to the rocks, and to the largest sea-shells, as if they derived their nourishment from them. If injected into spirits of wine, they will continue entire for many years; but, on being exposed to the air, they melt down, in less than twenty-four hours, into a limpid and offensive liquid.

Among the whole of this species, none are found possessed of a vent for their excrements; but the same passage which admits their food, serves also for the ejection of the fæces. These animals, as before observed, assume a great variety of shapes; so that it is difficult to describe them under determinate figures; but their bodies in general resemble truncated cones, whose bases are attached to the rocks where they are usually found adhering. Though generally transparent, they are frequently found of different colours: some inclining to green, others to red; some to white, and others to brown. In some, the colours appear diffused over the whole surface; in some they are only streaked; and, in others, they are often spotted. They are possessed of a very slow progressive motion; and, in fine weather, they are continually seen expanding themselves, and fishing for their prey. Many of them contain a number of long slender filaments, in which they entangle any small animals they happen to encounter, and thus draw them into their voracious stomachs, which occupy the whole cavities of their bodies. The harder shells continue undigested for several weeks; but, at length, undergoing a kind of maceration in the stomach, they become assimilated with the substance of the animal. These creatures may be cut in pieces, and yet every part of them will survive the operation; each soon becoming a perfect animal, endued with the natural rapacity of the species.

ASTERIAS, COMMON. The Common Asterias, which is furnished with five depressed rays, is broad at the base, subangular, rough, and of a yellow colour, having a round striated covering on the back. This species of the star-fish, however, is sometimes found defective, or with four rays only. It is common to the British seas; and generally abounds among oysters, to which it is very destructive.

ASTERIAS, DOTTED. The Dotted Asterias has likewise five smooth rays; but is distinguished from the common species by being dotted or punctured; and is of a beautiful purple colour.

ASTERIAS, RIMMED. The Rimmed Asterias has also five smooth rays, but the sides are surrounded with a regular scaly rim: on the mouth is a plate of a cinquefoil form; and the colour is somewhat reddish.

ASTERIAS, ROUGH. The Rough Asterias has five broad rays, and becomes angular at the top: the body is entirely covered with short bristles; and the colour is brown.

ASTERIAS, GIBBOUS. The Gibbous Asterias is distinguished by five very short and broad rays, slightly projecting: it is much elevated, and covered with a brown rough skin; and the mouth is situated in the midst of the pentagon.

ASTERIAS, FLAT. The Flat Asterias is furnished with five very broad and membranaceous rays, which are extremely thin and flat. This species has been caught near Weymouth, but is very scarce.

ASTERIAS,

ASTERIAS, MINUTE. The Minute Asterias has a circular body, and is provided with five very long and slender rough rays.

ASTERIAS, LIZARD. The Lizard Asterias is so called from the similitude of it's rays to the tail of a lizard; being smooth, slender, scaled, jointed, and white.

ASTERIAS, BEADED. The Beaded Asterias is pentangular and indented; smooth above the aperture, and five-pointed below. Between the bases of the respective rays, which are jointed, taper, and very rough on the sides, there is a small globular bead.

ASTERIAS, CINQUEFOIL. The Cinquefoil Asterias, which carries it's name in it's figure, is regularly cinquefoil; and is furnished with very slender rays, which are rough on the edges, and marked with green both above and below.

ASTERIAS, PIED. The Pied Asterias has a circular body, with ten radiated streaks: the extremities are in the form of a lozenge; and the rays are hispid, and annulated with red.

ASTERIAS, JAVELIN. The Javelin Asterias has a pentagonal and indented body, of a deep brown, marked with ten streaks of a reddish hue; five of which are extremely slender, and terminate in points resembling javelins.

ASTERIAS, RADIATED. The Radiated Asterias is distinguished by a round body, with streaks issuing from it's centre, alternately broad and narrow; having five slender and hispid rays.

ASTERIAS, INDENTED. The Indented Asterias has a circular body, marked with five equidistant indentations, which penetrate deep into the sides; five light-coloured streaks issue from the centre; and the rays are rough and slender.

ASTERIAS, BLACK. The Black Asterias is distinguished by the colour of it's body, from which it receives it's name, and five radiating streaks of white; the rays are rough, and of an olive colour, but tesselated with deeper shades.

ASTERIAS, BIFID. The Bifid Asterias has ten slender rays, beset with tendrils on their sides; and the mouth is surrounded with short rays resembling threads.

ASTERIAS, TEN-RAYED. The Ten-rayed Asterias is furnished with ten very slender rays, having a great number of long beards on their sides; and the body is minute, and encircled beneath with ten small filiform radiations.

ASTERIAS, TWELVE-RAYED. The Twelve-rayed Asterias contains twelve broad and finely reticulated rays, rendered hispid, with fasciculated papillæ on the superior part; and, on the inferior, it is red and hirsute. The ancient naturalists, according to Aristotle, gave the names of *Aster*, and *Stella Marina*, to this species of Asterias, from their resemblance to the pictured form of the stars of Heaven; and they also ridiculously fancied them possessed of so much heat, as to be capable of consuming whatever came in contact with them.

ASTERIAS, ARBORESCENT. The Arborescent Asterias is furnished with five rays issuing from an angular body; which are subdivided into innumerable ramifications, growing more slender as they approach the extremities. This species is by far the most curious of the whole genus: it is frequently caught on the coasts of Scotland; and it has sometimes been met with on the Cornish shores.

ASTRILD. A name given to a particular species of the loxia.

ASTURIS. A name used by Ray, and some

other naturalists, to express the accipiter palumbarius, or goshawk.

ASYLUS. A term by which some naturalists denote the gad-fly.

ATHERINE. A name given by Rondeletius, and some other naturalists, to the hepsetus, or anguella, a small fish common on the shores of the Mediterranean. Bellonius, however, appropriates it to a very different genus.

In the Linnæan system, the Atherine falls under the order of abdominales, and comprehends two species; viz. the hepsetus, and the menidia. The former, which is very common in the sea near Southampton, is there called a smelt; and the season of it's highest perfection is from the beginning of March to the end of May, or the beginning of June, when it usually spawns. It never quits those parts of the sea, and may be constantly caught, except during a very hard frost. It is not, however, entirely confined to this spot; but is sometimes found on other coasts of this island. It measures about four inches and a half in length; the back is straight, and furnished with two fins; the belly is somewhat protuberant; and the tail is considerably forked. This fish is of a silvery colour tinged with yellow, semipellucid, and covered with scales: the side-line is straight; and below it there is a row of small black spots. The latter species of the Atherine is found in the fresh-waters of Carolina, and is called by Garden the silver-fish.

ATINGA GUACU MUCU. A Brazilian bird, about the size of a thrush. The head is large; the bill, which is of a greenish yellow colour, is somewhat hooked; the eyes, which are sanguine, have black pupils; and the tail, which is remarkably long, consists of about ten feathers, some of the lower ones being shortest, but others, as well as all the upper ones, full nine inches. The head, neck, back, wings, and tail, have brown, or rather foot-coloured feathers, which are darkest in the tail; where, likewise, every feather, for about half an inch, is white and red, divided with shades of black. The throat, breast, belly, and thighs, are cinereous; and, on the head, there are long feathers, which the bird is capable of erecting, so as to appear like two horns. The legs, which are ash-coloured, are of a moderate length; and the feet have each four toes, disposed after the usual manner. Willughby, from the similarity of size, the conformation of the bill, and other resemblances, esteems it of the thrush kind; but some other naturalists have referred it to the starling tribe.

ATRICAPILLA. The name of a small bird, commonly called the black cap; described by some authors under the appellation of *ficedula fycalis*, or *melancholyphus*; and, by the Italians, under that of *caponegro*.

ATRICILLA. A species of the laurus.

ATTAGEN. A very beautiful bird, described by Aldrovandus; and called by the Italians *Francolini*, or *Free Fowl*, because the vulgar are restricted from taking it. The Attagen, as well in size as in the entire conformation of it's body, resembles the pheasant. It has a short black bill, crooked at the end; a fine crest of yellow feathers, variegated with black and white spots, is erected on the top of it's head; the eyes, which are black, have yellow irides; and the eyebrows, like those of the heathcock, are composed of naked scarlet-coloured skin. Under the bill, and in the beginning of the throat, hangs a tuft or beard of fine feathers; the neck, which is long and rather slender,

is cinereous, variegated with black and white spots; the spots of the breast are the same, but having a ferrugineous mixture; and the belly, tail, and thighs, are of a lead colour spotted with black. The fore-toes of the feet are long, the back-toe is short; and they are all armed with crooked claws.

The Attagen is found plentifully in the mountains of Sicily, and seems to be a species of our red game.

Bellonius and Scaliger have both mentioned the Attagen; and Martial and Aristophanes represent it as the most delicious bird served up at public entertainments. Trallian recommends it in consumptive complaints; Galen, in nephritic disorders; and Avicenna is of opinion that it increases the feminal secretions. The flesh is certainly delicious, nutritive, and easy of digestion, to a very high degree.

ATTELABUS. A genus of insects belonging to the order of coleoptera, in the Linnæan system, and including thirteen species. The head is attenuated and inclined; and the antennæ are thickest towards the apex.

ATTILUS. A river fish of the sturgeon kind, called by some authors adello, adano, and adeno. It grows to a very large size; and, when it has attained its full dimensions, it casts its scales, and ever after remains perfectly smooth: in which respect it certainly differs from the common sturgeon. It seems, however, to agree in every essential point with the huso Germannorum. It is esteemed proper for food; but is much inferior in flavour and taste to the sturgeon.

ATTINGA. A species of diodon, in the Linnæan order of nantes.

AVIS. The classical name for a bird.

AVIS LONGA. A name used by Nieremberg to express the hoctlatotl of the Americans; a bird remarkable for its swiftness in running.

AVIS NIVEA. A name under which Nieremberg has described an American bird, of the size of a thrush; variegated with black and brown on the back, and yellow under the belly. It imitates the human voice, and is called ceoan by the natives.

AVIS PENNIPULCHRA. The name of an American bird described by Nieremberg, called by the Indians quetzaltotl. It grows to the size of a pigeon; and its whole body is covered with the most beautiful pavonaceous plumage. There are three or four different species of this genus: Ray, however, has ranged all of them under the number of birds whose natural history is either uncertain or but little known.

AVIS TROPICORUM. A bird of the size of the common duck, to which the English commonly give the name of the tropic bird. It is only found within the tropics, and thence it obtains its name.

AVOSETTA. A very curious bird chiefly found in Italy, but an occasional visitant of the British isles. It is about eighteen inches long from the head to the extremity of the tail; very erect; and furnished with legs unusually long for its size. The bill turns up like a hook, in an opposite direction to that of the hawk or parrot, and widely different from that of any other bird whatever. This extraordinary bill, which is black, flat, sharp, and flexible at the extremity, is about three inches and a half in length. The tongue is short; the head, as well as half the hind part of the neck, is black; all the under side of the body is of a pure white; the back, the coverts on the ridge of the

wings, and some of the lesser quill-feathers, are of the same colour; and the other coverts, with the exterior sides and ends of the greater quill-feathers, are black. The tail consists of twelve white feathers; the legs, which are of a fine blue colour, are naked higher than the knees; and the webs are dusky, and deeply indented.

The Avoſetta feeds on worms and insects, which it scoops out of the sand with its bill: and its progress in search of food is frequently to be discerned in the sand by the appearance of alternate semicircular marks. It lays two eggs, about the size of those of the pigeon, which are white tinged with green, and marked with large black spots.

These birds are frequently observed in winter on the eastern shores of this kingdom: sometimes in Gloucestershire, at the mouth of the Severn; and at others on the lakes of Shropshire. When disturbed, they fly backwards and forwards over the heads of those who have excited their apprehension of danger, after the manner of the lapwing, carrying their necks and long legs quite extended, and making a shrill noise, continually reiterated; for which reason the country people usually call them yelpers, and sometimes picarini.

AUK. An aquatic bird, of which there are several species: particularly, the Large Auk; the Common Auk, or Razor-bill; the Black-billed Auk; and the Little Auk.

AUK, LARGE. The Large Auk breeds in the Isle of St. Kilda, where it appears about the beginning of May, and retires about the middle of June. It lays only one egg, about six inches long, which is of a white colour, marked with purple lines, and sometimes with ferrugineous spots; and, if this egg be removed, it seldom lays another during that season. It has been observed, that this bird does not make an annual visit to that island, but has sometimes been absent for several years successively; that it deposits its egg close to the sea-mark; and that it is among the most inattentive of all the feathered race to the propagation of its species, and the care of its young.

This curious bird is about three feet long; and the bill is upwards of four inches. The upper mandible is partially covered with short black velvet-like feathers, and is very strong. Between the eyes and the bill, on each side, there is a large white spot: the rest of the head, neck, back, tail, and wings, are of a beautiful glossy black; and the tips of the lesser quill-feathers, together with the whole under side of the body, are white. The wings being only about four inches long, are consequently of little service for flight: hence this bird is seldom found far from the shores; and on land it appears incapable of ascending to any considerable height by the assistance of its wings.

AUK, COMMON, OR RAZOR-BILL. This fowl is about eighteen inches long, and twenty-seven broad. The bill, which is two inches in length, and of a black colour, is very strong, and sharp at the edges; the upper mandible being marked with four transverse grooves, and the lower with three. The head, throat, and entire upper side of the body, are black; the wings and tail are likewise black; except the tips of the lesser quill-feathers in the former, which are quite white. The whole under-side of the body is white.

These birds seldom begin to breed till May, though they generally appear, in company with the guillemot, early in February. They fix their abodes on the extreme margins of lofty rocks hanging over

over the sea; where they form a very grotesque appearance, from the singular order of the rows in which they sit one above another. The eggs afford a considerable share of subsistence to the natives of the coasts which these fowls frequent, though they are taken with the most imminent danger. The resolution and activity these people shew in acquiring this part of their food, almost exceed the bounds of credibility. The eggs are generally deposited in such situations, that there is no possibility of procuring them without being lowered by ropes, the adventurer trusting to the strength of his companions for his preservation from destruction: and, indeed, the unstable nature of the footing is such, that the most horrid catastrophes have frequently occurred, the protectors and protected being at once hurried down the steep, dashed to pieces against the rocks, and precipitated into the ocean.

The Razor-bill lays but a single egg, which is of an extraordinary size in proportion to the bulk of the bird, and generally white, though sometimes of a pale sea-green, irregularly spotted with black. However, when this egg is taken or destroyed, it produces another to supply its place; and, on losing that, it even lays a third. It builds no nest, but deposits its egg on the edge of a rock with such nice equilibrium as to secure it from rolling off; and this is done with so much art, that if an egg is removed, and attempted to be replaced by the human hand, it is always extremely difficult, and sometimes absolutely impossible, to place it exactly in the same situation.

AUK, BLACK-BILLED. This bird, which is only fifteen or sixteen inches long, is full twenty-five in breadth. The cheeks and throat are white; and the bill is black: but in almost every other respect it coincides with the former species, to which some naturalists think it ought to be referred, notwithstanding these variations.

AUK, LITTLE. This extraordinary fowl is about the size of a common blackbird. The bill, which is convex, short, and thick, is of a black colour; and the legs and feet are covered with dirty greenish white scales, the webs being black. The crown of the head, hind part of the neck, entire back, and tail, are quite black; the wings are likewise black, except the tips of the lesser quill-feathers and the inner coverts of the wings, the former of which are white and the latter grey; the cheeks, throat, and under parts of the body, are all white; and the scapular feathers are white and black.

This bird is described by Willughby under the appellation of the small black and white diver with a short sharp-pointed bill; who adds to the above account, that the tail is short and a little white on each side, and that the bird is not very common.

Edwards has likewise noticed a bird that varies in a very slight degree from the Little Auk; and one, which he imagines differs only in sex: the head and neck of the latter being wholly black, and the inner coverts of the wings barred with a dirty white.

AULOS. A name by which several of the ancient writers have called the solen or razor-fish.

AURA. A species of vulture.

AURANTIUS PISCIS. A name which Nieremberg applies to the dorado, or dolphin; a species of the coryphæna, distinguished from the others by its forked tail.

AURATA. A name sometimes given to the gilt-head.

AURICULA. See **EARWIG.**

AURIS ASINI, or ASS'S EAR. A name given to a species of shell-fish, of the order of murex, supposed to bear some resemblance to the Ear of the common Ass.

AURIS MARINA. The ear-shell, or sea-ear.

AURIS PORCI. A name given by some naturalists to a sea-shell of the family of murex, from its resemblance to the ear of a hog.

AUSTURCUS, or OSTERCUS. The classical name sometimes applied to denote the goshawk: from whence falconers, who keep that species of hawk, are denominated Ostringers.

AXIS. A very beautiful animal of the deer kind, found in Africa and the East Indies, and of which naturalists observe two or three varieties.

AXIS, COMMON. This species is about the size of a fallow-deer, and of a light red colour. The body is beautifully variegated with white spots, and the lower part of the sides next the belly is marked with a line of white. The tail, which is about the length of that of the fallow-deer, is red above and white beneath. The horns are slender, and triple-forked; the first ramification being near the base, and the second near the top, each pointing upwards. It inhabits the banks of the Ganges, and the Isle of Ceylon: though it seems to bear the European climates without injury; and has even been bred in the menagerie of the Prince of Orange, near the Hague. It is extremely docile, and possesses the sense of smelling to a very exquisite degree. It eats bread with avidity; but, from the quality just mentioned, will refuse a piece which has been breathed on.

AXIS, GREAT. This animal, which is a native of Borneo and Ceylon, is about the height of a horse, and of a reddish brown colour. The horns, which are trifurcated, thick, strong, and rugged, are about two feet nine inches long, and two feet four inches between tip and tip.

This species frequents the low marshy places in Borneo; for which reason it is called, in the Javan and Malayan languages, mejangan banjoe, or the water stag.

AXIS, LESSER. The Lesser Axis is generally of the same colour with the former, but sometimes varies to white.

This is a gregarious animal, and inhabits Java, Ceylon, Borneo, and some other oriental islands. In Java and Celebes it is hunted with ardour, and affords the highest diversion. The flesh, which is esteemed excellent food, is usually cut into pieces, dried in the sun, and preserved in salt.

AXOLOTI. A singular species of fish found in the lakes of Mexico; which is furnished with four feet like a lizard; has a matrix like a woman, as well as the menstrual flux; and is destitute of scales. Its flesh tastes like that of the eel; and, notwithstanding its very peculiar conformation, it does not seem to possess any noxious qualities.

AYGULA. A species of ape.

AZOOPHAGUS. A term used by some naturalists to express such animals or insects as feed entirely on herbs, and never taste the flesh of any living creature. This term is therefore perfectly synonymous with herbivorous; and is applied in opposition to such animals as are naturally carnivorous.

B.

BABOON. The Baboon, which composes the second division of the monkey kind, is a large, fierce, and formidable race: and the human figure, as well as that of the quadruped, being blended in it's conformation, it seems only to possess the defects of both; all the native petulance of the former, and all the ferocity of the latter. In man, the leading features do not always indicate the temper of the mind; but, in animals, physiognomy is less liable to deceive: their dispositions may be gathered from their looks, and their internal propensities from their external forms. Viewing the ape and the Baboon in this light, it will evidently appear that they considerably differ in their dispositions; and that the latter is infinitely more fierce, savage, and malicious, than the former. The ourang-outang, which so nearly resembles man in it's figure, of all irrational animals, approaches the nearest to him in the gentleness of it's manners, and the docility of it's temper. The Barbary ape, which is the most distant of all it's tribe from the human form; and, with respect to it's face, approaches nearer the dog; bears also, in it's nature, a strong resemblance to the brute, being wild, restless, and impetuous, in all it's motions: while the Baboon, which is still farther remote from it's similarity to man, in having a tail, a prominent face, and sharp claws, approaches also nearer to the savage tribe in it's manners, and is extremely fierce, indocile, and mischievous.

The Baboon, properly so called, grows from three to four feet in height, is very strong built, has a thick body and clumsy limbs, with canine teeth of a disproportionate magnitude. It has large callosities behind, which are quite naked and red; it's tail is thick and crooked, and about seven inches long; it's snout (for it can hardly be considered as a face) is long and thick; and it has a pouch on each side of it's cheeks, in which it deposits the remainder of it's provisions after having gormandized sufficiently. It's hair, which is of a reddish brown colour, is pretty uniform over it's whole body. It very seldom affects an erect posture; and, instead of broad round nails, like those of the ape, it's hands, as well as feet, are armed with long sharp claws. Thus formed for strength, and furnished with dangerous natural weapons, this animal, in it's native haunts, proves itself to be one of the most formidable of the savage race. In this state, it appears to be actuated by two very opposite passions; an aversion to men, and a libidinous desire for women. These strange contrarieties in it's disposition might appear very questionable, if they rested on the testimonies of only one or two naturalists; but, as they are authenticated by the most credible and unbiassed, as well as the most inquisitive, observers of nature, we cannot refuse them our assent. From such authorities we learn, that these animals often attack women in bodies, and force them into the woods, where they confine them; and, if refractory, put them to death. We are informed by the Chevalier Forbin, that, in Siam, whole troops of these Baboons will often sally forth from their native woods, and attack the women of a whole village, when they know the men are ab-

sented on any expedition, or engaged in the rice harvest. On such occasions, they seem actuated by desire, as well as by hunger; and not only plunder the houses of what provisions they can find, but also endeavour to violate the women. The latter, however, as the Chevalier humorously relates, disliking either the manner or the figure of their beastly gallants, boldly stand on the defensive, and with clubs, or whatever arms they can provide, instead of meeting their caresses, soon compel them to retreat. The Baboons of Africa are certainly less formidable than those of Siam; their strength being inferior, and their power of doing mischief consequently less. At the Cape of Good Hope they seem under a kind of natural discipline, performing whatever they undertake with surprising skill and regularity. When they set about plundering an orchard or a vineyard, they do not go individually to work, but in large companies, and with preconcerted deliberation. On such occasions, while some enter the inclosure, one is stationed as a sentinel, and the rest stand without the fence, and form a line reaching to their rendezvous, which is generally in some contiguous craggy mountain. Every measure being thus settled, the plunderers within the orchard throw the fruit to those who are without, as quick as they can gather it; which being pitched from one Baboon to another, all along the line, with surprising expedition, it is speedily deposited in their head-quarters. While this business is carrying on, the most profound silence is observed among the whole fraternity; and if the sentinel, who continues assiduously on the watch, and is extremely anxious and attentive to every motion, perceives any enemy approaching, he instantly sets up a loud cry, at which signal the whole company precipitately retreat. They are not, however, on any account inclined to leave the place empty-handed, but carry off as much fruit as they conveniently can in their mouths, their hands, and under their arms. If the pursuit is continued, and they are in danger of being overtaken, they first drop the fruit which is lodged under their arms; next, that which is in their hands; and, lastly, what they have concealed in their mouths.

These animals, however, are by no means incapable of being tamed, and rendered subservient to some beneficial purposes. The natives of the Cape of Good Hope sometimes catch them when young; and, feeding them with sheep and goats milk, accustom them to guard their houses; a service they perform with extraordinary punctuality and fidelity. But those which we have seen imported into Europe are usually head-strong, rude, and untractable. Animals in general, when they have committed any mischief, indicate their sense of it, by running away; but these, seemingly careless and insensible, never appear conscious of having acted amiss.

Buffon gives us the following description of an animal of this kind. 'It was not (says he) remarkably ugly, and yet it's aspect excited horror. It continually appeared in a state of savage ferocity, gnashing it's teeth, darting at the spectators, and furiously restless. It was obliged to be confined in an iron cage, the bars of which it forcibly attempted to break; so that spectators were filled

filled with apprehension. It was a strong, bold animal, whose short limbs and powerful exertions shewed vast strength and agility. The long hair with which it was covered, seemed to assist it's mischievous ability; which, however, was in reality so great, that it could easily overcome a single man, unless he was properly armed. In other respects, it always appeared excited by that passion which at intervals will render the mildest animals furious and untractable. It was insolently lascivious, and gratified it's strong desires in public. It seemed also to make a parade of it's nakedness, oftener presenting it's posteriors, than it's head, to the view of the spectators.'

But however violent the desires of these creatures may be, they are by no means prolific in this climate. The female usually brings forth only one at a time, which she carries in her arms, clinging to her breast in a peculiar manner. As to the other qualities of the race of Baboons, they do not by any means appear carnivorous; they principally subsist on fruits, roots, and corn; and generally herd together in companies. Their internal structure is more unlike that of men than of quadrupeds; particularly the liver, which is divided into six lobes, like that of a dog. The lungs are also more divided; the guts, in general, are shorter; and the kidneys are more round and flat.

The different species of Baboons are very numerous, if we may give credit to some naturalists, who seem more ambitious of swelling the catalogue of their names, than of elucidating the nature and habits of the animals.

BABOON, LARGE, or PAPIO. The Large Baboon has a canine and very thick face, in some parts of a bright vermilion colour, and ending truncated like that of a hog. The ears and mouth are small; the irides are of a hazle colour; but the cheeks, throat, and beard, are yellow. The hair on the forehead is extremely long and black, and forms a kind of pointed crest. The head, arms, and legs, are covered with short black and yellow hair intermixed; and the breast with long whitish hairs of a yellow tinge. The feet and hands are black; and the nails are flat. The buttocks are red, bare, and obscene; but the space above them is covered with beautiful purple hair. The creature grows to near five feet in height; possesses very formidable powers; is endowed with extraordinary strength; and is naturally fierce, libidinous, and indocile.

Schreber informs us, that this animal lives on succulent fruits and nuts; that it is extremely fond of eggs; that it will drink immoderate quantities of wine or brandy; but that it rejects all sorts of flesh, unless previously dressed. This species is a native of the warmer climates of Africa.

BABOON, MAIMON, or the MANDRIL of Buffon. This is an ugly, disgusting animal, which grows to a considerable stature. The muzzle is longer than that of the preceding. It is of a blueish colour, and strongly marked with wrinkles, which gives it a very hideous aspect. But the creature is rendered most inexpressibly loathsome by a kind of snout continually issuing from it's nose, which it licks off at intervals with it's tongue, and swallows. It is a native of the Gold Coast; more frequently walks erect than on all-fours; and, when displeased, is said to express it's sorrow by a kind of infantine complaint. Some years ago, one of this species was exhibited in England: it appeared tame, but stupid; and had contracted a habit of opening it's mouth, and blowing on those who approached it.

Linnaeus places this animal among his *simia caudâ elongata*; and applies somewhat different synonyma to it; however, there cannot remain a doubt that this is his *simia maimon*.

Several varieties of this species of Baboons have been described by different authors; but their accounts are so contradictory, that we chuse to pass them over in silence.

BABOON, WOOD. This animal has a long canine face, which is covered with a glossy black skin: the hands and feet, which are naked, are of the same colour with the skin of the face. The hair of the whole body is long, and elegantly mottled with black and tawny. The height of this animal is three feet; and it's tail is about three inches long. This species inhabits Guinea; and is called by Europeans the man of the wood.

The Yellow, Cinereous, and Brown Baboons, differ chiefly from that just described in their respective colours; from which they receive their several names.

BABOON, LITTLE. The Little Baboon has a roundish head, projecting mouth, and round and naked ears. The thumbs are close to the fingers; the nails of the fingers are narrow, and compressed; and those of the thumbs are rounded. It has a brown face, with a few scattered hairs; the colour of the hair on the body is yellowish, tipped with black; the tail is about an inch long; and the buttocks are covered with hair. Linnaeus says that it is about the size of a squirrel; but Mr. Balk asserts that it is as large as a cat. This species is a native of India, and is extremely lively.

BABOON, CRESTED. The Crested Baboon has very long and dishevelled hair on it's crown; it's cheeks are of a dusky colour; the breast is whitish; and the rest of the body, together with the limbs, are covered with long black hair. The face is black and naked; and the tail is slender, taper, and about seven inches long. This animal inhabits Africa; and is about two feet long.

BABOON, PIGTAIL, or the MAIMON of Buffon. This creature, in size and conformation, approaches very near to the monkey tribe, being no larger than a cat. It's chief distinction, exclusive of it's prominent visage, like the Baboon race, is in the tail, which is about six inches long, and curled up like that of a hog; from which circumstance it has obtained it's name. It's face is naked, and of a swarthy redness; it has two sharp canine teeth, and ears like the human species. The crown of the head is dusky; the limbs and body are brown, inclining to cinereous; the fingers are black; the nails are long and flat; and the thumbs on the hind-feet are very long, and connected to the nearest toe by a broad membrane.

This animal, which is a native of Sumatra and Japan, does not seem capable of enduring the rigours of this climate. Edwards, however, kept one of them a whole year in London; and another of them happening at the same time to be exposed in an exhibition of wild-beasts, he brought the two exiles together, to see if they could claim acquaintance, or acknowledge their kindred; when these creatures, the moment they saw each other, testified their mutual satisfaction, and expressed the utmost joy at the interview. This is a very docile animal; and, in Japan, is taught several tricks, and carried about by the mountebanks. Keempfer was informed by one of these people, that the Baboon he owned was a hundred and two years old.

BABOON, DOG-FACED. The Dog-faced Baboon has

has a long thick nose, covered with a smooth red skin; the nails on the fore-feet are flat, and those on the hind-feet are like a dog's. The head is large and flat; and the hair on the cheeks, and as far down as the middle, is of a grey and olive colour, very long and shaggy. The buttocks, which are bare, are covered with a skin of a bloody hue; and the tail is pretty long, and generally carried erect.

This species, which inhabits the hottest parts of Africa and Asia, is very fierce and dangerous. They herd together in large companies, and commit numerous depredations with a sagacity and method altogether astonishing. They are equally detestable in their manners and in their appearance, being impudent, indecent, and lascivious. Some of them grow to upwards of five feet in height; and are so strong, that a man would be but a feeble opponent, if reason did not give him an advantage over strength merely brutal. One of these creatures, which was exhibited in London some years ago, manifested it's desire for women in a most astonishing manner. A footman, who had taken his sweetheart to see the animal, on perceiving this propensity, kissed her, and folded her in his arms, purposely to tease it; when the Baboon, enraged at being so tantalized, seized a pewter-pot, and threw it with such force and address at it's rival, that if the man's hat and wig had not moderated the blow, his skull must inevitably have been fractured.

BABOON, BEAR. This creature has a large head, and a long nose; that part of the head which projects over the forehead is prominent, and terminates in a ridge, which is covered with long erect hairs; and, indeed, the whole body of the animal is clothed with such long shaggy hair, that at first sight it appears like a bear, from which fancied resemblance it receives it's name. This species inhabits the Cape of Good Hope, where it is both numerous and mischievous; but, when confined, it becomes tolerably tame; though, on every slight provocation, it discovers a most revengeful and malicious disposition.

BABOON, LION-TAILED. The Lion-Tailed Baboon, which has a face like that of a dog, is naked, and of a dusky colour. It's nails are flat; and it's tail is terminated with a tuft of hair like that of the lion. But the most distinguishing peculiarity in this animal is, it's large white, coarse, rough beard; the colour of the rest of the body being black, except the belly, which appears of a light hue. It is a native of the East Indies, and the warmer African climates; and seems in almost every respect to answer the description of the animal to which Buffon gives the name of the wanderow.

BABYROUSSA. This animal, which is sometimes called *Porcus Indicus*, or the Indian Hog, has generally been referred by naturalists to the hog genus, though it seems essentially different; having neither the hair, the bristles, the head, the stature, nor the tail, of a hog. It's legs are considerably longer; it's snout is shorter; it's body is more slender, and somewhat resembles that of a stag; it's hair is finer, and of a greyish colour, rather resembling wool than bristles; and it's tail is tufted with the same. From these variations, therefore, we can scarcely consider it as a hog. It has also four enormous tusks, growing out of each jaw; the two largest from the upper, and the two smallest from the under. The jaw-bones, from whence these monstrous tusks proceed, are very thick and strong, and seem to distinguish it from all other quadrupeds whatever. The two tusks which proceed from the lower jaw are only about six inches long;

while those of the upper exceed eighteen. They have a circular bend like those of the boar; and the two lower ones stand in the jaw of the Babyroussa in the same manner as they are seen to do in the above animal; but the two upper ones rise from the upper-jaw rather like horns than teeth; and, bending upwards and backwards, have their points sometimes directed to the animal's eyes, and often prove fatal by growing into them. Were it not that the Babyroussa has two such large teeth underneath the two upper, they would naturally be considered as horns; and, in fact, as their sockets are directed upwards, Dr. Grew was induced to adopt that opinion. But, as the teeth of both jaws are of the same consistence, and as they both proceed from sockets after a similar manner, the analogy between them is too strong to suppose that they are of a different nature. The upper-teeth, when they leave their sockets, immediately pierce the superior lip of the animal, and grow as if they immediately rose from the cheek. The tusks in both jaws are of a very fine ivory, smoother and whiter than that of the elephant, but neither so hard nor so durable.

From these enormous tusks this animal derives a very formidable appearance; and yet it is accounted much less ferocious than the wild boar. Like animals of the hog kind, it is gregarious, and often seen in company with the wild boar; with which, however, it is never known to engender. It has a very strong scent, which immediately discovers it to the hounds; and, when pursued, it growls dreadfully, often turning back on the dogs, and wounding them with the tusks of it's lower jaw, those of it's upper being rather an obstruction than a defence. It is infinitely swifter than the boar; and has a more exquisite scent, winding the men and dogs at a very remote distance. When hunted closely, and in apparent danger, it will, if possible, plunge into the sea, where it swims with great swiftness and facility, diving and rising alternately; and in this manner it frequently escapes it's pursuers. Though fierce and formidable when offended, it is, when unmolested, peaceable and innoxious: it is easily tamed; but it's flesh, though generally esteemed salubrious, is said to become putrid in a very short time. It reposes in a way very different from that of most other large animals; hitching one of it's upper tusks on the branch of a tree, and then suffering it's whole body to swing down at ease. Thus suspended by a single tooth, it continues quite secure during the whole night, and out of the reach of such animals as hunt it for their prey.

The Babyroussa, however, though seemingly a hostile creature, and probably carnivorous, appears nevertheless to live chiefly on the leaves of trees and vegetables. It seldom, like the boar, attempts to break into gardens, in order to pillage them of the more succulent productions of human industry; but lives remote from the abodes of men, contented with personal security, and the humblest fare. It has been asserted by some naturalists, that the Babyroussa is found only in the Island of Borneo; but this assertion is undoubtedly erroneous, as this animal is well known in many other parts both of Asia and Africa, particularly in Celebes, Senegal, and Madagascar.

BACCHUS. A name given by some naturalists to the myxon, a fish of the mullet kind, remarkable for the red colour of it's lips, and the extremity of the covering of the gills.

BACTRIANUS. A species of the camel.

BADGER,

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BADGER. This animal, termed *melis*, or *taxus*, in the Linnæan system, is described as a species of the *ursus*, called in different parts of England, the brock, the gray, and the pate. Its legs are so very short, that its belly seems to touch the ground; but this is in fact a deception, occasioned by the length of its hair, which makes the creature appear much more bulky than it really is.

The Badger is a solitary, stupid animal, seeking refuge in the most sequestered places, where it digs a deep hole with remarkable assiduity. It seems averse to the light, and seldom quits its retreat till the night season, when it steals from its subterraneous abode for the purpose of procuring subsistence. Its legs being short and strong, and its claws stiff and horny, it burrows in the ground with the greatest facility. As it continues to bury itself, and to throw the earth behind it to a great distance, it forms for itself a long winding hole, at the bottom of which it remains in security. The fox being less expert at digging into the earth, frequently avails itself of the labours of the Badger; and, as some assert, forces the Badger from its retreat, by depositing its own excrements at the entrance of the hole.

The Badger, however, is not long in forming a new habitation; from which it seldom ventures far, as it is by no means remarkable for its fleetness. When it is surprized by dogs at any great distance from its hole, it combats them with desperate resolution, falling on its back, and defending itself in that posture to the last extremity. It sleeps away the greatest part of its time, by which means, without possessing a very voracious appetite, it always appears fat and plump, particularly in winter: it is also remarkable for its cleanliness. The female breeds in summer, and generally produces three or four young ones at a time, which at first she nourishes with her own milk, and then gradually habituates them to such humble prey as she can procure; seizing young rabbits in their warrens; robbing birds nests; finding out where the wild bees have laid up their honey; and bringing the whole plunder to her famished brood. Though old Badgers always continue savage and untractable, young ones are easily tamed, so as to play with the dogs, and follow their owners, like other domesticated animals. They are remarkably attached to a warm fire; which they often approach so closely, that they burn themselves in a very dreadful manner. They are subject to the mange; and have glands under their tails, which emit a strong scent. The poor of some countries eat their flesh; which, notwithstanding its being fat, is at best but rank and disagreeable.

These animals are generally hunted during the winter nights; and their hind quarters are sometimes made into hams, which are said to be tolerable food. Their skins, with the hair on them, are used for pistol furniture; and their hair is made into brushes for softening the shades in painting.

Badgers inhabit most parts of Europe, as far north as Norway and Russia: they are also found in China; and are often exposed to sale in the butchers shops of Pekin, their flesh being much admired by the Chinese. Badgers abound in every part of Great Britain, but seem most numerous in the midland counties.

Badgers are either caught by means of springs or steel traps, or by digging pits across their paths five feet deep, and four feet long, making them narrow at the top and bottom, and wide in the

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middle. These pits are covered with small sticks and leaves, that the animals may not suspect any danger, but inevitably fall into them whenever they tread on the surface. Sometimes they are hunted into their holes, and then dug out; but this method is very tedious, as they burrow extremely deep.

Naturalists have described three species of the Badger; the Common, the American, and the Indian.

BADGER, COMMON. The Common Badger has small eyes; short ears; a short thick neck; and very short and thick legs. The nose, chin, part of the cheeks, and the middle of the forehead, are white; the ears and eyes are encircled with a pyramidal bead of black; the hair on the body is long and rough, of a yellowish white at the roots, black in the middle, and cinereous at the points. The throat, breast, and belly, are black; and the tail, which is about six inches long, is covered with hair of the same colour with that on the body. The length of this animal is commonly two feet six inches, from the nose to the insertion of the tail; and it weighs from twenty to thirty pounds.

Naturalists formerly distinguished the Common Badger by the name of the Swine Badger, and the Dog Badger; from the fancied resemblance of their heads to those animals; and so divided them into two species. But the most accurate observers of nature have only been able to discover one kind; namely, that which has a head like the canine race.

It appears that the Common Badger is confined to the cold or temperate parts of the globe, being never found in the warmer climates of India or Africa.

BADGER, AMERICAN. The American Badger is distinguishable by a white line passing from the tip of the nose to the back of the neck, bounded with black as far as the hind part of the head; then by a white line; and, immediately between that and the ears, by another black one. The hair over the whole body is long, being ash-coloured on the back and belly, and yellowish on the sides. The thighs are darkish; and the tail is covered with long yellow hairs tipped with white, and terminating in a dusky colour.

This animal is a native of Terra del Labrador; and is very seldom seen in this country, either alive or in a state of preservation. Buffon describes it from a stuffed skin; and succeeding naturalists have in general adopted his words.

BADGER, INDIAN. The Indian Badger has scarcely any external ears; its head is small; its nose is pointed; each foot has five toes; and its claws are very long and straight. The nose and face are black; and the crown, neck, back, and upper part of the tail, are white, inclining to grey; but the legs, belly, sides, and the under part of the tail, are black. Its length, from the tip of the nose to the insertion of the tail, is about two feet; and the tail itself is about four inches long, and covered with short and smooth hair.

This species, which is a native of India, is carnivorous, sportive, and mild. It sleeps with its head between its hind-legs, and is a very rare and curious animal.

BÆTUS. A name given by Aristotle, and some other ancient Greek writers, to the fish called by the Latins *cottus*; supposed by modern naturalists to be the same with the bull-head, or miller's thumb.

BAGADAT. A term expressive of the *columba tabellaria*, or carrier-pigeon. This name

is probably a corruption of the word Bagdat, the city from which this bird is sometimes imported into Europe, though originally brought hither from Bassora.

BAGRE. A small bearded fish of the anguilliform kind, of which there are several species. It is destitute of scales, but its whole body is covered with a soft mucous skin of a silvery whiteness; of which colour likewise are the beard, the head, and the fins. The eyes are large, the mouth is small, and it has no teeth. It is caught in the American seas, and is esteemed eatable.

This fish is a species of the silurus, in the Linnæan system.

BAGRE DE RIO. A name sometimes given to the fish generally known by that of nhamdia.

BAIT, WHITE. A small fish caught in great plenty, during harvest, in the River Thames near Blackwall, and esteemed very delicious. The White Bait, which is certainly the fry of some particular fish, has been attributed to the shad, the sprat, the smelt, and the bleak. Pennant, however, observes, that this fish belongs to the genus of cyprinus, because it has only three branchiostegious rays, and one dorsal fin. Its body is compressed, like that of the bleak, its usual length being two inches; the under-jaw is the largest; the irides are silvery, and the pupils black; the dorsal fin consists of about fourteen rays; the side-line is straight; and the tail, which has black tips, is forked.

BALANCE FISH. The English name for the zygæna of naturalists; a fish of the whale kind, to which it is almost equal. The Balance Fish differs in size from all others with respect to the monstrous shape of its head, which resembles the large hammer of a blacksmith, at the extremities of which the eyes are placed; however, the forepart swells out into a semicircle, except that it terminates in an edge. The mouth, which is of an enormous size, is armed with three or four rows of exceedingly strong, broad, and sharp teeth, notched at the edges like a saw. The tongue is very broad; and the body is round and long, destitute of scales, and covered with a skin resembling leather. The spines on the back are continued to the superior part of the tail, where fins arise on each side. The tail is bifid; and, in many respects, this fish resembles the shark, though it may be easily distinguished from most others of its kind by the extraordinary formation of its head. It is a native of the Mediterranean Sea.

BALANI. A genus of shell-fish belonging to the class of multivalves, approaching nearly to the shape of an acorn, and usually found adhering to the shells of the larger sort of conchæ, but frequently distinguished in England by the name of centre shells. The Balani and the conchæ anatiferae are frequently confounded together, though in reality very different. The Balani are sometimes found affixed to a variety of submarine productions; such as the harder sea-plants, and all sorts of crustaceous and testaceous animals, rocks, and timber. They may be ranged very properly under the two distinctions of wide and narrow-mouthed; and include several species. The small fish which nature has inclosed in this shell is of a very singular and admirable structure. Leewenhoeck confesses that he never met with any other animal in which so many objects of wonder were disclosed to the naked eye. It has twelve legs, or arms, crooked, and garnished with a great number of hairs,

which it elevates on all occasions; and, besides these, it is furnished with eight others, inferior in size, and lower in position. The body in every respect resembles that of the concha anatifera. It is mucous, cartilaginous, and bad-tasted. The shell shapes itself, at the base, to the figure of the surface of whatever it adheres to, and from which it is with difficulty removed. In the Linnæan system this is a species of the lepas.

BALATITI. A name given by the natives of the Philippine Islands to a particular bird, by the flight of which they pretend to divine future events, like the ancient aruspices.

BALBUSARDUS. A classical name for the bird called in English the bald buzzard. It is of the long-winged hawk kind; and has been described by Aldrovandus, and some other naturalists, under the name of the halæetus and morphnus, two species of the eagle. It frequents the banks of ponds and rivers, and sometimes those of the sea, where it preys on fish. It builds its nest on the ground among reeds, where it lays three or four large white eggs, little inferior in size to those of the galinaceous tribe.

BALD PATE. An oriental fish, so called from its having no scales on the head and neck, though the rest of the body is covered with them. It is of a greyish colour; the mouth is extremely wide, and spotted with red; and the eyes are large, yellow, and prominent. It is caught in rivers, as well as in the sea; and the flesh is esteemed salubrious and agreeable.

BALEARIC CRANE. A name given by Pliny to a bird of the Crane kind, with a topping resembling that of the green wood-pecker. This bird was unknown to the moderns till they became acquainted with the birds of the tropical climates; when one of the Crane kind with a topping, was brought into Europe, and described by Aldrovandus as Pliny's Balearic Crane. It is pretty nearly of the shape and size of the common Crane, with long legs, and a long neck, like others of the kind; but the bill is shorter, and the colour of the feathers is of a dark greenish grey. The head and throat, however, form the most striking peculiarities in the conformation of this bird. On the head stands a thick, erect, round crest, composed of bristles, diverging every way, and resembling rays, diffused in various directions, the longest of which are about three inches and a half; and they are all terminated by a kind of black tassels, which give them a very rich and beautiful appearance. The sides of the head and cheeks are bare, whitish, and edged with red; and beneath the throat hangs a kind of bag, like that of a cock, but undivided. The eye is large and prominent; the pupil, which is black and large, being surrounded with a gold-coloured iris.

The Balearic Crane is a native of the coast of Africa and the Cape De Verd Islands; and by expanding its wings, it can run with great celerity, though its usual motion is but slow. When domesticated, it walks deliberately and majestically among other poultry, and suffers itself to be approached without any seeming apprehension. It never roosts in a house; but, when disposed to rest, it searches out some high wall, on which it perches, after the manner of a peacock; and, indeed, it so much resembles that bird in its several dispositions, that some naturalists have described it under the name of the sea-peacock, and even Ray seems inclined to refer it to that family. But though the Balearic

Balearic Crane agrees in some particulars with that beautiful race of birds, it also differs from it in so many essential qualities, that it cannot be referred to the same family without violating the laws of natural history. It appears pretty evident, however, that this bird was unknown to the ancients; and that, though it has obtained its name from one described by Pliny, we should more properly consider the real Balearic Crane of that author as being the lesser ash-coloured heron, or perhaps the egret.

BALESTRA. A name given by Salvian, and some other authors, to the fish more generally known by the name of caprisus.

BALISTES. A genus of the swimming amphibia, comprehending eight species.

BALIVIS. A name given by the natives of the Philippine Islands to the common duck of that climate; which is somewhat inferior in size to that of Great Britain, but much more beautifully variegated.

BALLAN. A species of the wrasse caught on the northern coasts of England, and differing in several particulars from the other species. It is formed like the common wrasse, except between the dorsal fin and the tail, where there is a considerable depression; above the nose is a deep sulcus; and, on the farther cover of the gills, there is a depression, radiated from the centre. It has only four branchiostegious rays; the dorsal fin has thirty-one; the pectoral fins have fourteen; the ventral has six; and the anal twelve. The tail is rounded at the extremity, and at the bottom, for a considerable space; and between each ray there is a row of scales. The colour of this fish is yellow, variegated with orange; and it commonly weighs about five pounds.

BALLERUS. A name given by some authors to a species of fresh-water fish of the leather-mouthed kind; which appears to be the same with the circassius, or (as some call it) the circassii tertium genus.

BALLERUS is also a name given by Aristotle to that species of cyprinus, called blicea pleystra and pallerus by the moderns.

BALTIMORE BIRD. The Baltimore Bird, which is generally found in Virginia and Maryland, is about the size of a linnet; from the neck to the tail, as well as on the upper part of the wings, it is of a bright gold colour; and the head is black. It usually fixes its nest to two twigs at the end of a bough of the tulip or poplar-tree.

BALTIMORE BIRD, BASTARD. The Bastard Baltimore Bird has a pointed bill, with a black spot under it. The tail and wings are of a brownish ash colour; but all the other parts are yellow, except the feet, which are blue. The head and breast, together with half the back of the female, are of the same colour; and the tail is black. The lower half of the wings is also black; the upper half, the extremity of the back, the breast, the belly, and the thighs, are of a dirty red; and the feet are blue.

BANOY. A name given by the natives of the Philippine Islands to a species of hawk somewhat larger than our sparrow-hawk, of a yellowish colour on the back and wings, and white under the belly. It is the most common species of hawk in that climate; and is extremely fierce and voracious.

BANSTICKLE. A name frequently given to the gastercisteus. It is likewise called the prickle-bag, or prickle-back; and sometimes the stickle-back.

BARB. An appellation sometimes given to the

Barbary pigeon, the columba numidica of Moore. This bird, which is but small, has a very short beak, like that of the bull-finch; with a naked circle of tubercle red flesh round the eyes; and the irides are of a pale colour. The value of the bird increases in proportion to the breadth and deepness of the colour of this circle; which, however, is always narrow when it is young, and does not arrive at its full breadth till the fourth year of its age. Some of this species have a tuft of feathers behind their heads, but others want that beautiful distinction. When the bird is affected with sickness, the red circle round the eyes becomes pale and whitish. The proper colour of the Barbary pigeon is black, or dun; though there are likewise some pied ones: but these, being of a mixed breed, are esteemed far less valuable.

BARBATUS PISCIS. A name given by Salvian to the silurus, called in English the sheat-fish, the glanus of Pliny, and other ancient naturalists. Artdi describes this fish under the name of the silurus with four cirri, or beards, at the mouth. This seems to distinguish it from the fish called the lake, or alkuffa; which, though certainly a genuine species of the silurus, has only one beard.

BARBE, or BARB. A beautiful, vigorous, and fleet breed of horses, brought from Barbary.

Barbs are generally slender made, their legs being far asunder. It has been remarked that Barbs grow ripe, but never old, because they retain their vigour to the last: and, for this reason they are greatly prized for stallions; their mettle, according to the Duke of Newcastle, ceasing only with their lives.

We are told that the Barbs anciently ran wild in the deserts of Arabia; and that some of them even exceed the ostrich in swiftness. Dapper informs us, that the most beautiful Barbs are sold sometimes at one thousand ducats apiece. They are fed with a very parsimonious hand; and their genealogies are preserved with as much care, and traced with as much precision, as those of the first families of Europe.

This valuable breed, however, is now much degenerated; the Arabians having been discouraged from keeping it up, through the violence and injustice of the Turkish officers, who seize them as soon as they are reared, without making a just compensation to their owners. At present, the Tingitanians and Egyptians have the reputation of preserving the best breed of Barbs, both with respect to size and beauty; the smallest of these last being usually sixteen hands high.

The principal qualities of the Barbs are, that they walk well; and stop short, if required, even in a full career. They are, however, lazy and negligent in all their motions; they will often stumble in walking over the smoothest ground; they trot very rough, and gallop very low; but, on the other hand, they are generally sinewy, nervous, and excellently winded, and therefore adapted for a long journey, if not over-weighted.

The mountain Barbs are accounted the best, because they are the largest and strongest: they belong to the Allarbes, a nation inhabiting the interior parts of Africa; for which reason they are not procured without difficulty.

Though Barbs are not unusual among people of fashion in this country, they fall infinitely short of that swiftness for which they are celebrated in their native regions. This may be accounted for, partly from the smallness and lightness of the Arabs, their riders; and partly, from their not being loaded with heavy

heavy saddles and bridles, as in Europe, nor even with shoes. An Arabian's saddle is only a cloth girt round, with a pair of light stirrups, and a kind of pommel to support them.

BARBEL. A kind of fish which usually frequents the deep and still parts of rivers, where it lives in societies; and roots, like the hog, with its nose in the soft banks. It is so tame, that it frequently suffers itself to be taken with the hand; and numbers may be caught with great facility in diving. In summer it prowls about in search of food; but, in winter, it confines itself to the bed of the river.

The Barbel is sometimes found to weigh eighteen pounds, and to measure three feet in length. It is of a long rounded shape, and is furnished with small scales. The head is smooth; and on each corner of the mouth there is a single beard, another being situated on each side of the nose. The dorsal fin is armed with a remarkably strong spine, sharply serrated, with which it frequently inflicts a painful and severe wound. The scales are of a pale gold-colour, edged with black; the pectoral fins are of a pale brown; the ventral and anal fins are tipped with yellow; the tail is slightly bifurcated, and of a deep purple; and the belly is white.

This is one of the coarsest of all fresh-water fish; and is therefore seldom eat but by the poorer sort of people, who frequently boil it with bacon, in order to give it a relish. The roe is extremely noxious; affecting those who incautiously or ignorantly eat it, with a nausea, vomiting, and purging, attended with a tendency to tumefaction.

BARBET. A Ceylonese bird, to which the epithet of red-crowned is generally added, to distinguish it from the yellow-cheeked Barbet, an inhabitant likewise of the same country. The crown and throat are of a fine scarlet colour; the bill is dusky, and beset with bristles; there is a black line above each eye; and on the cheeks, and above the tip of each shoulder, there is a large whitish spot. The breast is yellow, but crossed by one bar of black and another of red; the back and coverts of the wings are of a fine green; the belly is white; the tail is green, except the exterior feathers, which are brown; and the legs are of a pale red.

BARBET, YELLOW-CHEEKED. A Ceylonese bird, the head and neck of which are of a clouded light brown colour; the cheeks, round the edges, are naked and yellow. The bill is red, and beset with bristles; the back is of a pale green colour; the coverts of the wings are green, but beautifully marked with small white spots in the centre of each feather; the primaries are green; and the interior edges are dusky. The tail and belly are green; and the legs are of a kind of olive colour.

BARBET. A name given by Reaumur, and other French naturalists, to a peculiar species of worms which feed on pucerons.

This worm is more particularly called Barbet blanc, or herisson blanc, from its being covered with oblong white tufts of filaments, standing in the manner of the quills of a hedge-hog or porcupine. This creature is of the size of a small fly when stripped of its wings; but the tufted covering so much increases its apparent magnitude, that it seems as large as a horse-fly. In this form the Barbet lives for about a fortnight, and then becomes a chrysalis; from which, after the space of a month, proceeds a small beetle, of the size of our cow-lady, in general of a dusky brown colour.

BARBONI. A name frequently given to the

millus barbatus, a fish generally caught in the Mediterranean, and esteemed very delicious.

BARBUS. The classical name for the barbel, called by some writers mustus fluviabilis, a species of the cyprinus.

BARGE. A name sometimes given to the godwit or stone-plover.

BARIS. An animal of the monkey kind, described by La Croix as a native of Sierra Leona. It generally walks erect; and, when tamed, is capable of performing many domestic offices; such as grinding Indian corn in a mortar, fetching water in a jar, and turning a spit. It seems, however, to be merely a species of the ourang-outang, or man of the wood.

BARNACLE. A name frequently given to the conchæ anatifera, a kind of shell fish sometimes found adhering to the bottoms and sides of ships; and, at others, to the fins and tails of whales, in certain seas.

Various species of shell-fish are included under the name of Barnacles; though some naturalists reduce them to two, viz. the balanus, and pinna marina.

BARNACLE. The Barnacle likewise denotes a bird of the goose kind, common in the Hebrides; concerning the origin and species of which many fables have been invented. Ancient credulity has represented the Barnacles as the produce of a marine animal, or sea-shell; but modern naturalists, on better evidence, refer it to the natural manner of generation of the feathered kind, making it a real goose, produced, like others, from an egg.

The Barnacle is likewise sometimes called the soland goose, or anser Scotticus. Some naturalists erroneously maintain that it is the same with the French macreuse, or macrout; and others, that it is the same with the diable de mer. Dr. Robertson, however, marks the difference; describing the Barnacle as of the goose kind; the macreuse, as of the duck kind; and the diable de mer, as of the moorhen kind. The same author endeavours to prove that the macreuse is the same with the scoter, or anas niger minor, described by Ray and Willughby, in contradiction to the opinion of M. Cattier, who took it for the greater coot of Bellonius; and also of others, who mistook it for the puffin of the Scillies and the Isle of Man.

BARNFIARD. A bird generally seen hovering over the watery element, and regarded by mariners as a prognostic of unfavourable weather. It is about the size of a sparrow; its neck and back are black; its breast and belly are grey; its feet are red; and its bill is black, and somewhat depressed. It swims very nimbly along the surface of the water, but the place where it breeds is unknown.

BARRACADA. A species of fish about fifteen inches long, and three broad. The lower-jaw is a quarter of an inch longer than the upper; the eyes are two inches distant from the extremity of the snout; the lower-jaw is furnished with very small teeth; and the upper with a double row, of which the exterior are the shortest. The fore-part is narrow as far as the gills, to which members it gradually encreases; from thence it becomes almost of an equal thickness to the vent, where it begins to decrease to the beginning of the tail. The colour is dusky on the back, as far as the lateral line, which runs from the head through the middle of the sides to the tail; the belly is white; and the whole is variegated with small black spots, and

and covered with very small scales. On the back there are two soft fins, each about an inch in length, and the same in breadth; there are also two more at the gills, two on the belly, and one behind the vent; and the tail is broad and furcated. This fish has no English name; nor is it certain where it is caught: it is, however, mentioned on the authority of Sir Hans Sloane.

BARRACOL. A Venetian term for a species of ray fish, called by Bellonius and Gesner, *miraleus*; and, by others, *raia oculata lævis*. Artdi calls it a ray with a smooth back and belly, having the eyes surrounded with a series of spines, and a triple row on the tail.

BARSE. An English name for the common perch; and also the Saxon name now in use for the same fish.

BASILICUS. A name given by some of the ancient naturalists to the *regulus cristatus*, or golden-crowned wren.

BASILICUS, or BASILISK. A serpent of the most malignant nature; it's breath, and even look, being esteemed mortal. It is also said to proceed from a cock's egg brooded on by a serpent. These, and other stories, equally ridiculous, are related by Galen, Pliny, Dioscorides, and Erasistratus. Kirchmayer and Vander Weil, however, have detected the folly and imposture of the ancient traditions concerning it.

We meet with the Basilisk in holy writ; but the Hebrew word *Pethen*, which is translated Basilisk, signifies, according to the best interpreters and commentators, an Asp. In the Linnæan system the Basilisk is a species of the *lacerta*.

BASKET-FISH. A very singular fish sometimes caught in the North American seas, though not very frequent in any part of the world. Mr. Hooke, whom the Royal Society complimented with assigning it a name, calls it *piscis echinostellaris viscidiformis*. It's body resembles an egg-fish, or *echinus marinus*; and it's arms are like the star-fish: the division of the branches having more the appearance of mistletoe than any other natural production we are acquainted with.

This fish spreads itself, from a pentagonal mouth-piece or root, in the centre of which the mouth is placed into five main limbs or branches; and each of these, at it's first issuing out of the body, is divided into two, making ten in all. Each of these ten again divides itself into two, making twenty in all; and so on, till a fourteenth division is obtained, when they form upwards of eighty thousand limbs. After this stage they become too minute to be traced farther by the eye; but it is very probable that even these are successively subdivided.

The ramifications between the joints of the Basket-Fish are not all of them of an equal length; though, for the most part, they are pretty nearly so. The arms, or branches, which in their natural state are by no means very strong, on being dried, become so extremely brittle, that the smallest force is capable of destroying them.

This curious creature is sometimes found on the shoals of Nantucket, an island on the coast of New England; but, what is very remarkable, it is never seen there unless when caught by a bait-hook, laid for some other fish: this it clasps fast, and encircles with all it's arms, when it ascends to the surface of the water, in the shape of a wicker-basket, from which circumstance it receives it's name; but when it has been some time out of it's native element, it becomes quite flat.

The numerous arms with which this fish is furnished are evidently intended to assist it in catching it's prey; and it probably extends them to their full length while under the water, and enfolds in them every thing fit for food that happens to swim over, small mackerel having sometimes been found enclosed in the arms of the Basket-Fish.

It is evident that this fish is of the *stella arborescens*, or branched star-fish kind; but whether the same with that commonly known under the appellation of *caput Medusæ*, is uncertain.

The body of this fish, from what is related of it's protuberance, and it's resemblance to the *echini marini*, may probably form the *afteropodium* in it's fossil state.

BASSANUS. A species of the pelican.

BASSE. The English name of the sea-wolf, the *lupus piscis* of naturalists, so called from it's voracious appetites. It weighs about fifteen pounds, and resembles a trout in it's shape, except that it's head is proportionably larger. The irides are silvery; the mouth is large; the teeth are situated in the jaws, and are very small; and the scales, which are of a middling size, are remarkably thick set, and adhere closely to one another. The first dorsal fin has nine strong spiny rays, of which the foremost is the shortest, and the middlemost the highest; and the second dorsal fin consists of thirteen rays, the first spiny, and the others soft. The pectoral fins are furnished with fifteen soft rays; the ventral with six rays, the first spiny; and the anal fin has fourteen rays, the three first spiny, and the others soft. The back is of a dusky colour tinged with blue; the belly is white; and the tail is slightly forked. When young, the back is variegated with small black spots, which disappear as it advances in age.

The Basse is extremely well tasted, and very wholesome. It is found in the seas surrounding the British isles, but is seldom known to enter the mouths of rivers, though evidently a species of the perch.

BAT. A genus of animals which seem to fill up the chasm between quadrupeds and birds. Indeed, some naturalists have found animals of this kind so much partaking of the nature of both, that, in describing a Bat, they have been at a loss in which rank to place it; and have seemed to doubt, whether they were describing a bird or a beast. These uncertainties, however, no longer exist; for Bats are now universally ranked with quadrupeds, to which their viviparous nature, their hair, their teeth, and several other habitudes, evidently entitle them. Pliny, Gesner, and Aldrovandus, who placed them among birds, did not consider that they were destitute of every character of that order of animals, except the power of flying. Indeed, when this animal is seen at the dusk of the evening, supporting itself in the air with an aukward and seemingly constrained motion, it has, in some measure, the appearance of a bird; but naturalists, who have examined it with due attention, watched it's habits, and inspected it's conformation, are of a very different opinion.

The Bat scarcely resembles a bird in any one particular, except in that of supporting itself in the air. Like the quadrupeds, it brings forth it's young alive, and suckles them; it's lungs are formed like theirs; and it's intestines and skeleton bear a complete resemblance to those of quadrupeds. In many respects it even approximates the human race; so much, indeed, as to have led some votaries

of systematical arrangement to place it in the very highest class of animated nature.

BAT, COMMON. The Common Bat is about the size of a mouse, or nearly two inches and a half long. The members, usually called wings, are merely the four interior toes of the fore-feet extended to an enormous length, and connected by a thin membrane, reaching also to the hind legs, and from them to the tail. The first toe is entirely loose and flexible, serving as a heel when the Bat walks, or as a hook when it is desirous of adhering to any thing; and the hind-feet are disengaged from the surrounding skin, and divided into five toes, furnished with sharp claws. The body is covered with short fur, of a mouse-colour tinged with red; and the membranes are of a deep dusky hue. The eyes are small, and the ears exactly resemble those of the mouse.

This species of Bat is very common in England, and makes its appearance early in summer evenings. It principally frequents the sides of woods, glades, and shady walks; but is frequently observed to skim along the surfaces of rivers and canals. It generally preys on gnats, moths, and nocturnal insects of every kind. Its flight consists in a laborious, irregular motion: and, if it happens to strike against any object, and fall to the ground, it is usually caught with facility. It makes its appearance only during the most pleasant evenings; when its prey is abroad in great plenty, which it pursues with open mouth. At other times, it continues in its retreat, which is commonly the chink of a ruined building, or the trunk of a tree. This little animal, even in summer, sleeps away the greatest part of its time, never venturing abroad by day-light, nor in rainy weather; nor ever hunting for its prey except during a very small part of the night. But its short span of actual existence is still more abridged by its continuing in a torpid state during the whole winter season. On the first approach of cold weather, the Bat prepares for its state of lifeless inactivity; and seems rather to select a place where it may remain safe from interruption, than where it may be warmly or conveniently lodged. For this reason, it is usually seen hanging by its hooked claws to the roof of a cave, regardless of the dreadful surrounding damps. The Bat, indeed, seems to be the only animal that will venture to remain in these horrid subterranean abodes, unaffected by any possible change of weather. Such of this tribe as are not provident enough to procure themselves a deep retreat, where the cold and the heat can be but little affected by the external air, are sometimes exposed to great inconveniences: for the weather often becomes so mild, even in the middle of winter, as to warm them prematurely into life, and to allure them from their holes in quest of food, when nature has not provided them with a supply. These, therefore, having seldom strength to return, after exhausting themselves in a vain pursuit after insects which are nowhere to be found, become themselves the prey of owls, or other voracious animals.

The Bat copulates and brings forth its young in summer, generally from two to five at a time. The female, however, has but two nipples, which are placed forward on the breast, as in the human kind. From this peculiarity, Linnæus gave the Bat the title of a primas, and raised this contemptible animal to the same order with the human species. This assiduous enquirer into the secrets of nature, gives us to understand, that the female Bat, unlike

most birds and quadrupeds, builds no nest for her young, but seems fully satisfied with the first hole she meets with; where, sticking herself by her hooks against the sides of her apartment, she permits her young to hang at her nipple for the first or second day; and when she begins to grow hungry, and is necessitated to go abroad in quest of food, she sticks her little ones against the wall, in the same manner; to which they immoveably cling, and patiently expect her return.

Thus far the Bat seems closely allied to the quadruped race; its similitude to the bird being infinitely less striking. As nature has furnished birds with extremely strong pectoral muscles, to assist them in moving their wings, and to direct their flight; so has she also furnished the Bat. As birds, likewise, have very weak legs, and unfit for the purposes of motion, the legs of the Bat are fashioned in the same manner, and the creature is never seen to walk but in cases of extreme necessity. The toes of its fore-legs extend the web-like membrane which lies between them; and this, being extremely thin, serves to lift its little body into the air. In this manner, by an unceasing percussion, much swifter than that of birds, the creature continues to direct its flight: however, the great labour required in flying soon fatigues it; for, extremely unlike some birds, which are capable of continuing for days together on the wing, the Bat becomes languid in less than an hour, and returns to the enjoyment of its retreat.

If we consider the Bat as it is usually seen in our own country, we shall find it an harmless, inoffensive creature; the general tenor of its industry being employed in pursuing insects which are much more noxious to us than itself can possibly be; while its evening flight amuses the imagination, and adds one figure more to the pleasing groupe of animated nature.

In the East and West Indies, Bats are truly formidable; each of them singly is a dangerous enemy; but, when united in flocks, they become dreadful. Des Marchais informs us, that Bats are so numerous on the coasts of Africa, that if the natives were to eat them, as is the case in the East Indies, they could never want a supply of food. In these regions, a flight of them is sufficient to obscure the setting sun; and, in the morning, they are seen sticking on the tops of trees, and clinging to each other, like bees when they swarm. The Europeans frequently amuse themselves with shooting among this huge mass of living creatures, and observing their embarrassment when wounded. These Bats sometimes enter the houses of the negroes, and destroy whatever provisions come within their reach.

BAT, GREAT MADAGASCAR. This very formidable creature, the roufette of Buffon, is nearly four feet broad when its wings are extended, and one foot long. It resembles the English Bat in the form of its wings, in its manner of flying, and in its internal conformation; but is essentially different from it in several particulars. It has large canine teeth; with four cutting ones above, and as many below. The nose is black and sharp; the ears are large, and naked; and the tongue is pointed, and terminated by sharp aculeated papillæ. The exterior toe is detached from the membrane, the claw being strong, and hooked; the hind-feet have five toes, the talons of which are very strong, crooked, and compressed sideways; and the animal has no tail. The head is of a dark ferruginous colour; the neck, shoulders, and under-side, appear of a lighter

a lighter and brighter red; the hair on the back is dusky and smooth; and the membranes of the wings are likewise dusky. The colour, however, varies considerably; some being entirely of a reddish brown, and others dusky.

These formidable animals are found in Guinea, Madagascar, and in all the islands from thence to the most remote ones in the Indian Ocean. They likewise (as appears from the voyages of the late Captain Cook) abound in New Holland, the Friendly Isles, the New Hebrides, and New Caledonia. When they repose, they stick themselves to the tops of the tallest trees, from whence they hang with their heads downwards; but, when in motion, they have a very terrific appearance. They are seen in these islands in immense multitudes; darkening the air, as well by day as by night; destroying the ripe fruits of the country; and sometimes settling on animals; and even man himself: they indiscriminately devour fruits, flesh, and insects; and drink the juice of the palm-tree. They are heard at night in the forests, at the distance of more than two miles, making a horrible noise; but no sooner does day begin to approach, than they hasten to retreat. Hardly any thing is secure from the depredations of these noxious animals: they destroy fowls, and various domestic animals, unless preserved with the utmost care; and frequently fasten on the very faces of the inhabitants, where they inflict dangerous wounds. Indeed, it is very probable, as Buffon remarks, that the ancients have taken their ideas of harpies from these fierce and voracious creatures; as they both seem to concur in many parts of their description, being equally deformed, greedy, uncleanly, and cruel.

The Indians esteem the flesh of these animals peculiarly excellent, especially at certain seasons of the year, when they are very fat. The French, who inhabit the Isle of Bourbon, boil them in their bouillon, in order to give it a relish; while the negroes hold them in the greatest abhorrence. Many of them are of much larger dimensions than those already described. Beckman measured one that was five feet four inches from one tip of the wing to the other: and Dampier informs us, that he saw one which spread farther than he could reach with his arms extended. Their bodies are generally from the size of a pullet to that of a dove; their scream is dreadful, and their smell rank: they resist fiercely when attacked, and their bite is terrible.

Linnæus gives this species the title of Vampyre, supposing it to be the same with that which draws blood from persons when asleep: but Buffon is of a contrary opinion, ascribing that faculty to a species found only in the new world. Pennant, however, differs from both these naturalists: and very justly observes, that there is reason to imagine that this thirst after blood is not confined to the Bats of one continent, nor of one species; for Bontius and Nieuhoff inform us, that the Bats of Java generally attack those persons who lie with their feet uncovered, whenever they can procure access into their apartments: and Gumilla, after describing a greater and a lesser species found on the banks of the Orinoco, declares them to be equally greedy after human blood.

Persons who have been thus attacked by this dreadful phlebotomist, have sometimes passed imperceptibly from a sound sleep into eternity. The Bat is so dextrous as to insinuate its sharp-pointed tongue unperceived into a vein, and to suck the blood till it is satiated; at the same time fanning

with its wings, and agitating the air, which in hot climates lulls the sufferer into a more profound sleep. It is therefore dangerous to repose in the open air, or to leave any entrance unsecured by which those noxious animals can be admitted. They do not, however, always confine themselves to human blood; for M. De Condamine, in his Voyage to South America, informs us, that in certain parts of that continent the Bats have destroyed all the cattle which were introduced there by the missionaries for the purpose of forming a settlement.

BAT, VAMPIRE, or SPECTRE. This animal, though less formidable in its appearance, is more mischievous than the former. It is furnished with a kind of horn at the extremity of the nose; and its ears are extremely broad, long, and erect. The hair on the body is ash-coloured and pretty long; the wings are full of ramified fibres; the membrane extends from one hind-leg to the other; and the animal being without any tail, three tendons proceed from the rump, which terminate at the edge of the membrane. It is a native of South America; where it lives in the palm-trees, and grows very fat. Ulloa informs us, that the Bats of this species, towards the close of day, leave their retreats, and visit the cities and towns, covering the streets like a canopy: and that they are the common pest of men and animals; effectually destroying the one, and considerably distressing the other.

Buffon supposes the Vampyre to be the principal blood-sucker; and, indeed, it is agreed by all travellers, that this Bat is possessed of the faculty of drawing blood from persons sleeping in exposed situations. But still a strong difficulty remains to be accounted for; namely, the manner in which it inflicts the wound. Ulloa supposes it to be done by a single tooth; but this is evidently impossible, since the animal cannot fasten on any thing with one tooth only, the teeth of the Bat being very even, and the mouth small. Buffon, therefore, supposes the wound to be inflicted by the tongue: but others, with a greater degree of probability, imagine that the animal is endowed with so great a power of suction, that the pores of the skin are thereby greatly enlarged, and the blood at length flows out; and, in confirmation of this opinion, we are told, that the Vampyre cannot injure any animal which has a thick skin.

BAT, JAVELIN. This species, which is of the size of the common Bat, is distinguished by its large pointed ears; and particularly by an erect membrane at the extremity of its nose, in the form of an ancient javelin, having two upright processes on each side. It has no tail; its fur is cinereous; and it inhabits the warmer parts of America.

BAT, LEAF. This animal, the *feuille* of Buffon, has small round ears; and a membrane on the nose, in the form of an oval leaf. It is furnished with a web between the hind-legs, but has no tail. The fur is of a mouse-colour tinged with red; and its size is equal to that of the common Bat. It inhabits Jamaica, Surinam, and Senegal. In the former island it lives principally in caves in the woods, and it is said to feed on the prickly pear.

BAT, CORDATED. The colour of the face of this animal is a light red, and that of the body still more pale. Its ears are very broad and long; and from the extremity of its nose runs a large membrane in the shape of a heart. It has a web between its hind legs, but no tail. This species inhabits Ceylon and the Molucca Islands.

BAT,

BAT, PERUVIAN. The body of this Bat is nearly equal in size to that of a pretty large rat; and the extent of its wings is two feet five inches. It has a head like a pug-dog; large, straight-pointed ears; and two canine, with two small cutting teeth, in each jaw. The tail is inclosed in the membrane which joins to each hind leg; being also supported by two long cartilaginous ligaments involved in the membrane. This animal is of an iron-grey colour.

There is another Bat with a large head and hanging lips like those of a mastiff. It is less than the former, but agrees with it in every other respect. It inhabits Peru, and is frequently met with on the Mosquito shore.

Linnaeus, on account of the number of its teeth, places this species among the glires, next to the squirrels, under the name of *noctilia Americanus*; but such is the variety in the numbers and dispositions of the teeth in animals of this genus, that a professed systematist might almost form as many genera as there are species. However, Bats have such distinct external characters, that it is totally unnecessary to have recourse to the more latent marks in order to ascertain their definitions.

BAT, BULL-DOG. The length of the body of this animal is little more than two inches; and the extent of the wings nine inches and a half. It has broad round ears, the edges touching each other in front; the nose is thick; the lips are pendulous; and the upper part of the body is of a deep ash-colour, the lower part being pale. The tail is long in proportion to the magnitude of the animal, and the five last joints of it are disengaged from the skin or membrane.

BAT, SENEGAL. This animal measures about four inches from the nose to the rump; and the extent of the wings is nearly twenty-one inches. It has a pointed nose; a long head; and short and pointed ears. The head and body are of a tawny brown, mixed with ash-colour; but the belly is somewhat paler: and the two last joints of the tail extend beyond the membrane. It is a native of Senegal, from which it receives its name.

BAT, POUCH. This creature is only an inch and a half long; the nose is somewhat elevated; the chin is divided by a furrow; the ears are long, and rounded at the extremities; and on each wing, near the second joint, there is a small pouch or purse. The tail is partly involved in the membrane, and partly projects. The body is of an ash-coloured brown; and the belly is somewhat paler. This species inhabits Surinam.

BAT, BEARDED. This species, which is small, is distinguished from all others of the Bat tribe by having hair on its forehead, and very long hair under its chin. The nostrils are open a considerable way up the nose; the ears are long and narrow; the upper part of the head and body are of a reddish brown; the lower parts are of a dirty white, tinged with yellow; and the tail is included in a membrane extremely full of nerves. This creature is a native of North America.

BAT, NEW YORK. The length of this animal, from the nose to the tail, is ten inches and a half; the tail is one inch and three quarters; and the extent of the wings is ten inches and a half. The head is shaped like that of a mouse; the ears are short, broad, and rounded; it has two canine teeth in each jaw, but no cutting teeth; and its tail is inclosed in a membrane of a conical shape. The head, the body, and the whole upper side of the

membrane inclosing the tail, are covered with long and very soft hair of a bright tawny colour, but lightest on the head and on the beginning of the back; the belly is more pale; at the base of each wing there is a white spot; the wings are thin, naked, and dusky; and the bones of the hind-legs are very slender. This species inhabits New Zealand, and several of the North American provinces.

BAT, STRIPED. This animal is an inhabitant of the Island of Ceylon, where it is called *kinwoula*. It has a small short nose; the ears are broad, short, and pointing forwards; and the upper part of the body is of a clear reddish brown, the lower part being whitish. The wings are striped with black, and sometimes with tawny and brown. The length of this animal, from the nose to the insertion of the tail, is about two inches.

To this species of Bat may be referred another minute kind seen in great numbers in the New Hebrides: but which eluded every attempt of our late voyagers to obtain a specimen.

BAT, MOLUCCA. This animal, from the nose to the rump, measures about three inches and three quarters; and the extent of the wings is about fifteen inches. It has a large head; a thick nose; small ears; and tubular nostrils. The upper lip is divided; the tongue is covered with a number of papillæ and minute spines; the claw is united with the wing by a membrane; the first ray of the wing is terminated by a claw; and the extremity of the tail reaches beyond the membrane. The head and back are of a darkish ash-colour; and the belly is a dull white. This species seems peculiar to the Molucca Isles.

BAT, HORSE-SHOE. There is a greater and a lesser variety of this animal: the greater is about three inches and a half long from the nose to the tip of the tail, and the extent of its wings is about fourteen inches. It has a membrane at the end of the nose, shaped like a horse-shoe. The ears are large, inclining backwards, broad at the base, and sharp-pointed; but it is destitute of the little or internal ear. The upper part of the body is of a deep ash-colour; the lower part is whitish; and the tail is inclosed in the membrane. It inhabits the province of Burgundy, in France; and has lately been discovered in some parts of Kent.

BAT, NOCTULE. The length of this Bat is almost three inches; the tail is nearly two; and the extent of the wings is thirteen. The ears are small and rounded; and the chin is marked with a minute verruca. The hair of this animal is of a reddish ash-colour. It inhabits Great Britain and France; and never skims near the ground, but flies high in pursuit of its prey.

BAT, SEROTINE. This Bat is about two inches and a half long from the nose to the rump. Its nose is oblongated; its ears are short, but broad at the base; and the hair on the upper part of its body is brown mixed with ferruginous, that on the belly being somewhat paler. It is a native of France; but is likewise found in the caverns of rocks in some of the most remote parts of Russia.

BAT, PIPISTRELLE. This seems to be the least of all the Bat tribe; being no more than an inch and a quarter long; and the extent of the wings about six inches and a half. The nose is small; the upper lip is slightly prominent; the ears are broad; the forehead is covered with long hair; the colour of the upper part of the body is a yellowish brown, the lower being dusky; and the lips are yellow. It is found

found in France, and in the rocky and mountainous parts of Russia and Siberia.

BAT, BARBASTELLE. This animal is about two inches long, and the extent of it's wings is ten inches and a half. The forehead is depressed; the ears are long and broad; the nose is short, and flattened at the end; and the cheeks are full. The upper part of the body is of a dusky brown colour, and the lower is ash-coloured and brown. It is a native of France.

BAT, LONG-EARED. The body and tail of this animal are only one inch and three quarters long; the ears, which are upwards of an inch long, are thin, and almost pellucid; and, like all other Bats, except the horse-shoe and the ternate, it is furnished with an internal or lesser ear, serving as a valve to close the greater when the animal is asleep. It is a general inhabitant of Europe, and of Great Britain in particular.

BAT, SEA. This curious fish is about eight inches long, and nearly of the same breadth: two large spines proceed from the under-jaw; there are two large fins resembling wings on the back and belly; and the tail-fin is like that of a dorado. The Sea-Bat is wholly of a dark brown or dusky colour. The skin on the back, and all round it's sides, is rough like shagreen, intermixed with some larger pointed risings; but that of the belly is smoother and softer.

There is another species of Sea-Bat which has a head like that of a toad; the fins very much resemble the wings of the land-animal of this name; and the tail is long, and somewhat like that of a sharp-snouted ray.

They are both natives of the Brazils and the West-Indian seas.

BATACHOSALIS. A name given by many of the ancient Greek authors to the lophitis, or rana piscatrix, of the modern naturalists.

BATIS. See **BATOS** and **RAIA**.

BATOS. The name given by Aristotle and the ancient naturalists to the skaite, or flaire. They have generally called the male, *Batos*; and the female, *batis*. It is a species of the *raia*; and is distinguished by Artedi under the name of the variegated ray, with the middle of the back smooth, and with one row of spines on the tail. Albertus gives it the title of the *rayte* and *rubus*.

BATRACHUS. A species of the *silurus*, a genus of fishes.

BAVOSA. An Italian name for a species of the ray-fish, called by modern authors *levi-rayia*, and *raia oxyrynchus*; and, by the earlier writers, *raia bos*, *bos marinus*, and *leioraia*. It is described by Artedi under the name of the variegated ray with ten prickly tubercles on the middle of the back.

BEAGLE. A sort of hound, or hunting-dog. Beagles are of several kinds; as the southern Beagle, somewhat less and shorter, but thicker than the deep-mouthed hound; the fleet northern or cat Beagle, small, and a more fleet runner than the southern: and from these two, by crossing the strains, is bred a third sort, esteemed preferable to either. To these may be added a still smaller species, scarcely bigger than the lap-dog, which afford excellent diversion in rabbit-hunting; but are otherwise unserviceable, on account of their size.

BEAN-FLY. A very beautiful insect of a pale purple colour, frequently found on bean-flowers, and produced from the worm or maggot called *mida* by naturalists.

BEAR. A well known quadruped of the cat

kind; which, in the Linnæan system, makes a distinct genus of *feræ*, or wild-beasts. The distinguishing characters of the Bear are, that it has six fore-teeth, both above and below, the upper ones being alternately hollow within; the cutting teeth are single, and conical; the grinders are five or six in number; the tongue is smooth; and the nose is prominent. There are several different species of Bears; such as the black Bear of North America, the smallest of the genus; the brown Bear of the Alps; the great Greenland, or white Bear; and the Kamtschatka Bear: but all of them, though different in size and form, are unquestionably of the same original, and owe their principal variations to food and climate.

BEAR, AMERICAN BLACK. This animal has a long head, small eyes, and short ears rounded at the top. It's nose is long and pointed, and of a yellowish brown colour; it's limbs are strong, thick, and clumsy; and it has a short tail, with large feet. The hair on the body and limbs is black, smooth, and glossy: and it is said to be mild and shy in it's disposition, subsisting only on vegetables, particularly maize and potatoes, of which it is remarkably fond. Du Pratz says that the Bear will even reject animal food, though pressed by hunger: but Dr. Goldsmith affirms the contrary; declaring that he has often observed the young ones, when brought over to England, prefer flesh to every kind of vegetable aliment.

These animals strike with their fore-feet like a cat; and very seldom make use of their tusks, but seize their assailants with their paws, and press them against their breasts so as almost instantly to squeeze them to death. The females, after conception, retire into some secret place, lest the males should destroy their cubs when they are littered: and so impenetrable are their retreats, that, though several hundreds of Bears are killed annually in America during the winter, hardly a single female is ever found among them. They bring forth two, and sometimes three at a time; and though their cubs are certainly very deformed, they are not so shapeless as has been sometimes pretended. The flesh of Bears, in autumn, when they are become exceedingly large by feeding on acorns and other arborescent food, is extremely delicate; and the fat, which preserves a certain degree of fluidity, is remarkably white and sweet. After fattening itself to a very great degree, the Bear retires to it's den, where it continues forty or fifty days in a state of total inactivity and abstinence from food: but, at the end of that period, being forced from it's retreat by hunger, it comes forth in quest of fresh nourishment evidently much emaciated. It is a mere vulgar error to suppose that, during this time, the Bear subsists by sucking it's paws; since it rather lives on the exuberance of it's former flesh, and only feels the calls of appetite when the fat it had acquired in summer becomes almost exhausted. The Bear retreats either to the cliffs of rocks, the deepest recesses of the most impervious woods, or to the hollows of decayed trees, which it ascends and descends with surprizing agility. Multitudes are killed annually for their flesh and skins, both of which are valuable; and the latter, in particular, forms a considerable article of commerce.

BEAR, BROWN. This creature, except in size and colour, almost entirely resembles the former. It is not only savage, but solitary. It destroys cattle, and feeds on carrion; however, it's general food is roots, fruits, and vegetables. It plucks up

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great quantities of peas; and, beating them out of the shells on some stone or hard spot of ground, eats the peas, and carries off the straw. In winter, when vegetable food begins to grow scarce, it often breaks into farmers yards, and makes terrible havock among their oats.

The voice of the Brown Bear (and, indeed, of every other species) is a kind of growl; and though, when tamed, it appears gentle and placid to its owner, it should nevertheless be cautiously managed, being often capricious, treacherous, and vindictive. Though apparently stupid and awkward in the extreme, it is not altogether indocile. There are few persons, perhaps, who have not seen it dance on its hind legs; though its air and motion are proverbially ungraceful.

After the Bear arrives at maturity, it becomes incapable of being tamed; but, notwithstanding its ferocity, the natives of those countries which it inhabits hunt it with great alacrity. The most general and least dangerous method of catching Bears, is by throwing brandy on honey, which they eat with avidity, and thus become intoxicated. In Canada, where Bears are numerous, as they commonly take up their lodging in trees rendered hollow towards the top by age, they are taken by setting fire to these retreats, which are frequently from twenty to thirty feet from the ground. The old Bear generally ventures first out of its den, and is shot by the hunters; and the young ones, as they descend, are caught in snares.

BEAR, WHITE. This species has a long head and neck; short round ears; large teeth; and limbs of vast size and strength. The hair is long, soft, and white; being tinged in some parts with yellow. The length of the White Bear is frequently thirteen feet; and it seems to be almost the only animal which, by being placed in the arctic regions, grows larger than those of temperate climes. All other species of animated nature, as they approach the poles, seem to diminish in size, through the rigours of the surrounding atmosphere; but the Bear, unmolested in these desolate climes, and meeting with no opponent more powerful than itself, grows to an enormous size: and, as the lion is the tyrant of the African forests, so the Bear sways his rude sceptre over the icy mountains of Greenland and Spitzbergen.

When our mariners land on the unfrequented parts of those gelid coasts, the White Bears come down to view them: they approach slowly, seemingly undetermined whether to advance or retreat; and, being naturally timid, they are urged on to attack their enemies only by a consciousness of their superior strength. When shot at, however, or wounded, they attempt to fly; or, if they find that impracticable, they make a fierce and desperate resistance.

These animals live on fish, seals, the carcasses of whales, and even on human bodies; which last they often greedily dig out of their graves. Delighting in human blood, they are sometimes so daring as to attack companies of armed men, and even to board small vessels. During the summer season, they reside on the islands of ice, frequently shifting from one to another. Being excellent swimmers, they dive with great agility; in which act battles sometimes ensue between them and the morse or the whale; in which the whale is generally victorious, being the most expert of the two in its own element. If the Bear, however, is fortunate enough to find a young whale, it in general

amply repays itself for the danger incurred by meeting with the parent.

The mutual affection which subsists between the female White Bear and its young is so strong, that they will rather die than desert each other: and history furnishes us with several remarkable instances, where the maternal love displayed by this animal has been at once extraordinary and affecting.

This creature seems to be entirely confined to the coldest regions of the globe; for it does not appear, from any respectable authority, to be met with any farther to the southward than Newfoundland. Such Bears as have appeared in more temperate latitudes have been involuntarily carried thither on floating islands of ice; so that the countries of Norway and Iceland can only be acquainted with them through accident.

The flesh of this animal is white, and tastes like mutton. Its fat is melted for train oil; and that extracted from its feet is used in medicine. The liver is said to possess poisonous qualities.

A few years since, one of this species was publicly exhibited in England. It appeared very furious; roared loud; and seemed constantly uneasy, except when cooled by large quantities of water poured over it.

Land-Bears, spotted with white, and at other times wholly white, have sometimes been observed, in a wandering state, in those parts of Russia which border on Siberia; and are probably such as have strayed out of the lofty snowy mountains which divide the two countries.

BEAR, KAMTSCHATKA. The Bears of Kamtschatka are neither large nor fierce; never attacking the inhabitants, unless they find them asleep, and then seldom killing them, though they frequently tear the scalp from the back part of their heads; and, when fiercer than ordinary, lacerate some of the fleshy parts, but never eat them. The people who have been thus wounded are called Dranki, and are frequently met with. It is remarkable, that the Bears of Kamtschatka, though so numerous as to cover the fields like cattle in summer, never hurt women; but go about with them like tame animals, especially when they gather berries. Sometimes, indeed, the Bears eat up the berries which the women have gathered; but that is the sole injury they ever offer them.

In the season when the fish enter the mouths of the rivers in vast shoals, great numbers of Bears come down from the hills, and settle in proper places for catching them; which they do in such profusion, that they only eat and suck the bones of the heads, neglecting the bodies: but when this plenty ceases, they are glad to gnaw the bones which they formerly despised. They frequently steal fish from the fishing-huts of the Cossacks, though there is always a woman left to watch them; and to her, indeed, they never do any hurt.

Before the introduction of fire-arms, the people of Kamtschatka used many devices for killing the Bears. Among others, the following seem most worthy of notice. Having cut several billets of wood, they stopped up the mouth of the den with them; these the Bear never failed to draw in, that his passage from his den might not be shut up. This they continued doing till he was so straitened in his den, that he could not turn himself; they then dug down from above, and killed him with their spears. The Koreki, in order to catch the Bear, seek out some tree that is crooked above, on which they fasten a snare, and behind it place
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some proper bait; which the animal endeavouring to seize, is held fast by the head or paw. Sometimes they place heavy logs of wood in such situations as will make them fall with the slightest touch, so as to crush the Bear beneath their weight. Another method is, to lay a board driven full of iron hooks in the Bear's track, near which they place something that easily falls down; and this terrifying the Bear by it's fall, he runs on the board with great force, and finding one fore-paw wounded, and seized by the hooks, he endeavours to free himself by beating the board with the other: both being thus fixed, he rests on his hinder-legs, which occasion the board to rise before his eyes, and perplex him in such a manner, that he soon becomes furious, and beats himself to death. The people about the Rivers Lena and Ilime have a very odd method of catching them. They place a noose on the Bear's track or entrance to his den, fastened at the end to a large log of wood: when the Bear finds himself entangled, and feels that the log prevents his walking easily, he takes it up, and carries it to some precipice, from whence he throws it down with great force, and of course falling with it, is violently bruised. However, he fails not to repeat this practice, till in the end he kills himself.

From the month of June to the end of harvest, these Bears are very fat; but, in the spring, they are lean and dry. In the stomachs of those killed in the spring, nothing is found but a frothy slime.

BEAVER. This animal is far less remarkable for the singularity of it's conformation, than for the intellectual powers it is observed to possess. It is the only quadruped which has a flat, broad tail, covered with scales, serving as a rudder to direct it's motion in the water. It is the only quadruped, also, which is furnished with membranes between the toes of the hind-feet solely, which supply the place of hands, as in the squirrel tribe. It is, still farther, the only animal that, in it's fore-parts, entirely resembles a quadruped; and, in it's hinder-parts, seems to approach to the nature of fishes, by having a scaly tail. In other respects, it's length, from the nose to the tail, is about three feet; it's tail is eleven inches long, and three broad; and the animal is somewhat like a rat. It has strong cutting teeth; short ears, almost hid in the fur; and a blunt nose. The hair is of a deep chestnut-brown, and composed of two sorts: the one long and coarse; and the other short, soft, fine, and silky. Like birds, it has but one vent for it's natural evacuations; a peculiarity in it's conformation of which we should be inclined to doubt, did not the most celebrated naturalists concur in it's support.

The Beaver seems to be the only remaining monument of brutal society. In all countries where man is civilized, the lower ranks of animals, as Buffon judiciously remarks, are repressed and degraded. Either reduced to servitude, or treated as rebels, all their societies are dissolved, and all their united talents rendered ineffectual; their feeble arts have quickly disappeared; and nothing but their solitary instincts, or those foreign habits which they have received from human education, can now be traced.

The Beaver, from the effects of it's labours, which are still to be seen in the remote parts of America, may teach us how far instinct may be aided by imitation. From thence we may also perceive to what a degree animals unassisted either

by language or reason, are capable of concurring for their mutual benefit; and of attaining, by dint of numbers, those advantages which each, in a state of solitude, seems unfitted to possess. Viewing the Beaver only in the light of an individual, and unconnected with others of it's kind, we shall find that many other quadrupeds excel it in cunning, and almost all in the powers of annoyance and defence. The Beaver, when kept in a state of solitude or domestic tameness, appears to be a mild, gentle creature; familiar, but dull even to melancholy; without any violent passions or appetites; moving but seldom; making very few efforts to regain it's freedom; calm, and indifferent to all about it; without attachments or antipathies; and never seeking to conciliate the favour of man, nor aiming at offending him. In those qualities which render animals serviceable to man, the Beaver appears inferior to the dog: it seems neither formed to command nor to serve; and is only adapted to live among it's own kind. Thus the talents of this creature are entirely repressed in solitude, and are only brought to light by it's being placed in society. When accidentally detached from it's companions, it neither exhibits industry nor cunning, and appears incapable of guarding itself from the most obvious and inartificial snares of the hunters. Far from attacking any other animal, it scarcely possesses the arts of defence; and, preferring flight to cunning, like all other wild animals, it only resists when driven to extremity, and when it's speed can no longer avail.

About the months of June and July, the Beavers begin to assemble in great numbers, and to form a society, generally consisting of more than two hundred, which continues during the greatest part of the year. The place of their rendezvous, which is always near the margin of some lake or river, is commonly made the scene of their future action. If the waters are always on a level, they dispense with building a dam; but if they are subject to floods and falls, they then set about erecting a pier over the river or lake, so as to form a kind of dead water in those parts which lie above and below it. This dam, or pier, is often fourscore or a hundred feet long, and ten or twelve feet thick at the base. If we compare the greatness of the work with the powers of the architects, it will appear enormous. But the solidity with which it is built is still more astonishing than it's extent: it is usually formed in the most shallow part of the river, and where some great tree overhangs the stream, which they pitch upon as the principal stay to their fabric; and, though it is often thicker than a man's body, they instantly set about hewing it down with their teeth; and soon level it on the very side on which they wish it to fall, which is always across the stream. They then proceed to cut off the top branches, in order that the tree may lie close and even, and serve as the principal beam of the building. The dyke, or pier, descends with a slope on that side next the water; which gravitates on the work in proportion to it's height, pressing it with a prodigious force towards the earth. The opposite side is erected perpendicularly; and that declivity, which at the base is about twelve feet broad, diminishes till it terminates in a breadth of only two feet.

Wood and clay are the materials of which this mole consists. The Beavers cut, with surprizing expedition, pieces of wood, nearly as thick as a man's arm, and five or six feet long, according as the slope ascends; and these they drive into the ground at a small

small distance from one another, intermingling with them others which are smaller and more pliant. Left the water, however, should find a passage through the intervals or spaces between them, and leave the reservoir dry, they have recourse to a particular kind of clay, with which they stop up all the crevices, both within and without. They then continue to raise the dyke in proportion to the elevation of the water, and the quantity they wish to confine; and being conscious that the conveyance of their materials by water is more easily effected than by land, they avail themselves of the current of the stream, and swim with their mortar on their tails, and their stakes between their teeth. If the Beavers find their works in the least damaged by the violence of the water, or by the feet of the huntsmen, every part of them is narrowly inspected, and the breach perfectly repaired with the utmost diligence and application. But when the hunters intrude too often, the animals either work during the night, or entirely abandon their fabric, and seek a more retired situation. When the Beavers have thus far compleated their habitation, their next care is to erect their several apartments, which are either round or oval, and divided into three stories, raised one above another; the first, which is that below the level of the causeway, being for the most part full of water. These little cottages, which are built in a very firm and substantial manner on the edge of the reservoir, are always in the form above-mentioned; that, in case of the water's increase, they may have a higher retreat to fly to. If they find any little island contiguous to their reservoir, they there fix their mansion; such a situation being not only more solid, but less liable to be overflowed: but if they cannot pitch on such a commodious spot, they fortify their habitations with piles, as a defence against the wind as well as the water. At the bottom are two inlets to the stream; one consisting of a passage to their bath, which is always kept neat and clean; and the other leading to that part of the structure into which every thing is conveyed which can either soil or damage their upper apartments. They have likewise a third opening or door-way, considerably higher, contrived for the purpose of preventing their being shut up by any external accident, when frost and snow have closed the apertures of the lower floors.

In the construction of their lodgings, the Beavers make use of the same materials as in their dykes. The walls of the former are about two feet thick, and raised perpendicularly. They cut off with their teeth, in a very neat manner, all those parts of the wood which project beyond the wall; and then, having mixed some clay and withered grass together, they work them up into a kind of mortar, with which, by the help of their tails, they plaister all their works both internally and externally. The insides of their habitations, which are vaulted, are sufficiently capacious for the reception of eight or ten Beavers; and, when constructed in an oval figure, they are generally twelve feet long, and eight or ten feet broad. If the number of inhabitants increases, the edifice is proportionably enlarged: and we are credibly informed, that four hundred Beavers have sometimes been discovered residing in one large mansion-house, divided into a vast number of apartments, but at the same time preserving a free communication with one another.

In the more northern climates, the habitations of these animals are finished in August, or early in September; when they begin to lay in their stores.

During the summer months, they regale themselves every day on the choicest fruits and plants the country affords; and give themselves up to a species of epicurism: but, in winter, they subsist principally on the wood of the birch, the plane, and some other trees, which they steep in fresh-water from time to time, in quantities proportioned to the number of inhabitants. The branches they use for food are frequently ten feet long; those of the largest dimensions are conveyed to their magazines by a whole troop of Beavers; but the smaller sorts can generally be managed by one. Each of them, however, takes a different way; and has his own proper walk assigned him, in order that one may not interrupt another in the prosecution of his labour. Their wood-yards are larger or smaller in proportion to the number in a family: and, according to some curious naturalists, the usual stock of timber for the accommodation of ten Beavers, consists of about thirty feet in a square surface, and ten in depth. These logs are not thrown up in one continued pile, but laid across each other, with intervals between them, in order that such quantities only as are wanted for immediate consumption may be come at with the greater facility. This timber is again cut into small particles, and conveyed to one of their largest lodges, where the whole family meet, in order to consume their respective allotments, which are divided in a very impartial and equal manner. Sometimes, however, they venture into the woods; and at such seasons they have an opportunity of regaling themselves and their young with more acceptable food.

Those who are accustomed to hunt these animals, being perfectly aware that green wood is much more grateful to them than that which is old and dry, place a considerable quantity round their lodgments; and, when they sall forth to seize it, either catch them in snares, or take them by surprise. When the frosts are very severe, the hunters sometimes break large holes in the ice; and, on the Beavers resorting to these apertures to breathe the fresh air, they either kill them with their hatchets, or cover the holes with large substantial nets. This being done, they undermine and subvert the whole fabric; when the Beavers, expecting to make their escape in the usual way, fly with precipitation to the water; and, rushing to the opening, fall directly into the net.

Besides the associated Beavers, there is another sort called terriers; destitute of either industry or sagacity to construct habitations like the former. These burrow in the banks of rivers, making their holes beneath the freezing depth of the water, and working up for a great number of feet.

The skins of Beavers, which form a very lucrative article of commerce, are distinguished under the appellations of coat Beaver, parchment Beaver, and stage Beaver: the first is used by the Indians for coverlets; the second obtains its name from the resemblance which the lower side bears to parchment; and the third is what the Indians kill out of season, on their stages or journies.

From the inguinal gland of the Beaver is taken that valuable drug called castoreum. The Russian castoreum is so much preferable to the American, that the former is sold for two guineas a pound; whereas the latter is worth no more than eight shillings. It is esteemed an excellent medicine in all nervous disorders; particularly in hysteric fits, and the general train of feminine complaints.

Beavers inhabit Europe from Lapland to Languedoc;

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guedoc; they abound in the north; and they are sometimes seen in the Rhone, the Garrone, the Danube, the Rhine, and the Vistula. They are also found in great plenty in the Russian Asiatic dominions; but they are by far the most numerous in North America. Their flesh, when preserved by being dried in the smoke, is esteemed very delicious; but their tails are reckoned the most flavoury parts.

BEAVER, MUSK. The Musk Beaver has a thick obtuse nose; large eyes; and short ears, which are almost hid in the fur. The toes on each foot are separated, the hind ones being fringed on each side with strong hair closely set together; the tail, which is compressed side-ways, is very thin at the edges, and covered with scales intermixed with a few hairs; the head and body are of a reddish brown colour; and the breast and belly are ash-coloured tinged with red. The length of the body, from the nose to the tail, is about twelve inches; that of the tail is about nine inches; and the whole figure exactly represents the common Beaver in miniature.

The Musk Beaver is a native of North America; and breeds three or four times a year, bringing forth from three to six at a time: the male and female consort together during the summer; and when winter approaches, the animals unite their families, and retire into small round edifices covered with domes composed of plants and reeds cemented with clay. At the bottoms of these buildings there are several conduits, through which they pass in search of food; and for this they have daily occasion, as they possess none of the provident foresight of the common Beaver. Their habitations, during the winter season, are covered many feet deep with snow and ice; but they frequently creep out, and feed on the roots which lie beneath. They erect new habitations every year, and desert their old ones.

The fur of this animal is very soft, and much valued; and its flesh has an exquisite musky smell during the summer season.

BEAVER, SEA. This animal has not the smallest resemblance to the common Beaver; but was at first so called merely from the downy softness of its hair. It is as large as the sea-cat: its shape resembles that of the seal, excepting its head, which is like that of a bear; its fore-feet are longer than its hind-feet; its teeth are small; its tail is short and flat, and sharp towards the point; and its hair is thick, and black as pitch: that of old Beavers is grey; and that of young ones is long, brownish, and remarkably soft.

This is the most peaceable of all sea animals; for it never makes any resistance, but only endeavours to save itself by flight. The females are very affectionate to their young, and carry such as cannot swim on their bellies between their fore-feet; for, till the little ones are capable of swimming, the mothers swim on their backs. When the fishermen pursue them, they never quit their offspring till the very last extremity; and, if they happen to let them slip, presently return to the place from whence their cries are heard.

There are three ways of catching Sea-Beavers: first, by nets placed among the sea-cabbage, whither the animals retire in the night-time, or during storms; secondly, by chasing them in boats; and, thirdly, by killing them on the ice.

BECASSINE. A name given by several naturalists to the tringa minor; or, as it is usually called with us, the sand-piper.

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BECCIFAGO. A small bird which feeds on vegetables, berries, and other fruits; and is commonly seen in the north of England, where it obtains the name of the petty-chaps. It is scarcely so large as the common linnet; and is remarkable for the shortness of its body. Its head, neck, back, wings, and tail, are generally of a greenish grey; but, in some, it is of a greenish brown.

BECUNE; or, WEST-INDIAN SEA PIKE. This fish bears a strong resemblance to the river pike, except that it is considerably larger, being sometimes eight feet long. It possesses very voracious appetites; and is extremely dangerous in its own element, because capable of biting with more facility than the shark. Its flesh has the same taste as that of the fresh-water pike: but there is much danger in eating it; for, unless the teeth appear white, and the liver retains a sweet smell, it is highly deleterious.

BEE. A well-known insect; the history and œconomy of which, though they have engaged the study of naturalists, at different periods, for a series of near two thousand years and upwards, are still but imperfectly ascertained. Reaumur, indeed, who spent a great part of his life in the contemplation of this little animal, has furnished us with a description sufficiently minute: but, hurried away by an enthusiastic admiration of the subject of his researches, he has ascribed qualities and habitudes to this curious race which most naturalists are now apt to consider as extravagant.

It is certain that every hive is composed of three different sorts of Bees. The first sort consists of those called labouring Bees, which are by far the most numerous, and are generally regarded as neutral, being neither male nor female, but apparently produced for the purposes of labour, and for supplying the young Bees with provisions while in an adolescent state. The second sort is that called drones; which are of a darker hue, as well as larger, and longer by a third, than the former: and of these, which are supposed to be the males, there is seldom above one hundred in a hive consisting of several thousands. The third sort, which is that called queen Bees, and who are said to lay all the eggs from which the whole swarm is hatched, is much larger than either of the former, and still less plentiful: some naturalists have asserted, that there is only one in each swarm; but later enquirers into the œconomy of Bees affirm that there are frequently five or six.

If we examine the structure of the common Bee, the first remarkable part which presents itself is the trunk, an instrument serving to extract honey from flowers: it is not formed, like that of other flies, in the shape of a tube, by which the fluid is to be sucked up; but rather like a tongue, to lick it away. The insect is also furnished with teeth, which assist it in making wax: this substance, which is collected from flowers, like honey, consists of that dust or farina which contributes to the fecundation of plants, and is moulded into wax at leisure. Every Bee, when it leaves the hive in quest of this precious store, enters into the cups of such flowers as seem to be charged with the greatest quantities of yellow farina. As the body of the animal is entirely covered with hair, it rolls itself within the flower, and soon becomes entirely enveloped in this dust, which it afterwards brushes off with its two hind-legs, and kneads into two little balls. In the thighs of its hind-legs there are two small cavities, edged with hair; and

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into these the animal sticks it's pellets. Thus employed, the Bee flies from flower to flower, increasing it's store of honey, and adding to it's stock of wax, till the ball on each thigh becomes as big as a grain of pepper; after which it intermits it's labour, and returns to it's hive.

The belly of the Bee is divided into six annulations or rings, which are capable of being contracted or expanded at pleasure. Besides the intestines, the insect is internally furnished with a honey-bag, a venom-bag, and a sting. The honey-bag, which is as transparent as crystal, contains the honey which the Bee has brushed from the flowers, the greatest part of which is carried to the hive, and poured into the cells of the honeycomb, while the remainder serves for the animal's own nourishment; for, during the summer season, it never touches it's winter's hoard. The sting of this industrious creature, which is imparted to it by nature as a defence against it's enemies, is composed of three parts; namely, the sheath, and two extremely small and penetrating darts; and both these darts are furnished with several points, or barbs, like those of a fish-hook, which rankling in the wound, render the sting more painful. This instrument, however, would prove but a weak defence, if the Bee did not poison the wound. The sheath, by means of it's sharp point, makes the first impression; and this being followed by that of the darts, the venomous fluid is speedily injected. The former weapon sometimes sticks so fast in the flesh, that it is obliged to be left behind, and the wound is thereby much enflamed; but the Bee does not long survive it's loss.

From examining the Bee singly, we proceed to an enquiry into it's habits in society; and, in this view, we behold an animal active, vigilant, laborious, and disinterested: subject to regulations, and perfectly submissive. All it's provisions are laid up for the community; and all it's arts are employed in building a cell, designed for the benefit of posterity.

The substance of which the cells of Bees are formed consists of wax, fashioned into convenient apartments for themselves and their young. When they begin to work in their hives, they divide themselves into four companies: one of which traverses the fields in quest of materials; another is occupied in laying out the bottoms and partitions of their cells; a third is employed in smoothing their insides from any remaining asperities; and the fourth company either brings food for the rest, or relieves those who return with their respective burdens. They are not, however, uniformly fixed to the same avocations, but frequently change the tasks assigned them: those who have been at work in the hive being permitted to go abroad, while those who have been in the fields are called upon to supply their places. They even seem to have signs by which they understand each other: for when any one of them wants food, it bends down it's trunk to the Bee from whom it is expected; which immediately opens it's honey-bag, and lets some drops fall into the other's mouth, which is opened on purpose to receive them.

Such is the astonishing and unwearied diligence of these creatures, that, in one day's time, they are capable of constructing cells sufficiently numerous to contain three thousand Bees; and which, if examined, will be found to be formed in the most exact proportion. Pappus, an ancient

geometrician, informs us that, of all other figures, hexagons are the most convenient; for when placed so as to touch each other, the most commodious room will be given, while the least possible will appear to be lost. The cells of the Bees are perfect hexagons; and these, in every honeycomb, are double, opening on either side, and closing at the bottom. The bottoms are composed of little triangular panes; which, when united together, terminate in a point, and lie exactly upon the extremities of the upper panes of the same shape, but in opposite cells. These lodgings have spaces resembling streets running between them, large enough to give the Bees a free passage in and out, and yet narrow enough to preserve the necessary degree of heat. The mouth of every cell is defended by a border, which, though it renders the entrance somewhat less than the inside of the cell, serves to strengthen the whole fabric. Their cells answer very different purposes, being at once the repositories for their wax, their honey, and their young.

It is universally allowed, that the habitations of Bees ought to be very close: and what their hives want in this respect, owing to the negligence or unskilfulness of man, these animals are sure to supply by their own industry; so that, when first hived, it is their principal care to stop up every chink. For this purpose, they make use of a resinous gum, more tenacious than wax, and of a very different nature. This gum, which the ancients called propolis, grows pretty hard, but is nevertheless capable of being in some measure softened by the heat: it is often found to vary in consistence, colour, and smell; it has generally, however, an agreeable aromatic odour when warmed, and some persons consider it as a most grateful perfume. When the Bees begin to work with this material, it is extremely soft; but, acquiring a firmer consistence daily, it at length assumes a brown colour, and becomes fit for every purpose intended. Some have supposed this gum to be expressed from the willow, the birch, and the poplar; but, whatever may be the resources from which it is drawn, the hives of the Bees are all internally plastered with this composition.

From the hurry and bustle the swarm seems to be in, when examined through a glass hive, the whole at first sight appears like anarchy and confusion; but the spectator, on a closer inspection, soon discovers every animal sedulously employed, and following one pursuit with a settled purpose.

The teeth of the Bees are the instruments by which they model and fashion their various buildings with such astonishing symmetry and perfection. They begin at the top of the hive, and several of them are employed at one time in constructing the double-faced cells.

The formation of their combs, which is attended with infinite labour, is completed by insensible additions; and not cast at once in a mould, as some have idly imagined. The cells for their young are most carefully formed; those designed for lodging the drones are larger; and that meant for the queen Bee is the largest of all. It is evident that these apartments also serve at different times as storehouses for honey. Every worm, before it is transformed into an aurelia, suspends it's old skin on the partition of it's cell; which, while it strengthens the fence, at the same time diminishes the extent of it's late apartment. The same cell, in the space of one summer, is often tenanted by three or four worms in succession; and, the next season, by three

three or four more. Each worm takes particular care to fortify the pannels of it's cell, by hanging up it's spoils there; and thus the partitions being lined six or eight deep, become at last too narrow for a new brood, and are applied to the purpose before-mentioned. Those cells where honey only is deposited, are much deeper than the rest; and, when the increase of this delicious store happens to be so great, that there is not sufficient room for it, the Bees either lengthen their combs, or build others considerably longer than the former. Sometimes they work in three combs at a time; for, in that case, more Bees may be thus employed, without confusing each other.

Honey, however, as before observed, is not the only food on which these animals subsist. The farina of flowers, from which their wax is formed, is one of their most favourite repasts: on this they in a great measure subsist during the summer; and also lay up a large winter stock of it. When the flowers on which Bees generally feed are not fully blown, and this dust, or farina, does not appear in sufficient quantities, they pinch the tops of the stamina in which it is contained with their teeth; and thus anticipate the progress of vegetation. In April and May, the Bees are constantly employed from morning till evening in collecting this food; but, in the middle of summer, when the weather proves very warm, they generally relinquish that labour before noon.

The Bee is furnished with a stomach for it's wax, as well as with one for it's honey: in the former, the powder is altered, digested, and concocted into real wax; and is again ejected by the same passage by which it was swallowed. Every comb, when newly formed, is white; but, as it grows old, it gradually becomes yellow, and afterwards almost black. Besides the wax thus digested, there is a large portion of the powder kneaded up for food in every hive, and kept in separate cells, for winter provision: this, among country people, obtains the name of Bee-bread; and is said to contribute to the health and strength of the animals during the inclemency of winter. Those who rear Bees may rob them of their honey, and feed them with treacle during that season; but no proper substitute has yet been discovered for the Bee-bread, without which the insects soon become consumptive, and die.

The Bee extracts the honey from that part of the flower called the nectarium. From it's mouth this delicious fluid passes into it's gullet, and from thence into it's first stomach or honey-bag; which, when distended, appears like an oblong bladder. When it has sufficiently filled it's first stomach, it returns to the hive, where it disgorges the honey into one of the cells; though it sometimes delivers it to one or other of it's society, at the mouth of the hive, and instantly flies off for a fresh supply. Some of the honeycombs are always left open for common use; while others are stopped up till there is a necessity for opening them. Each of these combs is carefully covered with wax; and so well closed, that the smallest breath of air cannot possibly gain admission.

If we consider this little animal attentively, it will appear that, after the necessary precautions for the immediate preservation of the community, it's second care is turned to the continuance of posterity. How numerous soever the multitude of Bees in a swarm may appear, if we credit the inquisitive and accurate Reaumur, they all derive their origin from one single parent, called the queen

Bee. It is, indeed, surprizing that a single insect should, in the course of one summer, give birth to more than twenty thousand young; but, were we to open it's body, our wonder would quickly cease, as the number of eggs contained in it at one time sometimes amount to five thousand. The queen, whose existence is of such importance to her subjects, may easily be distinguished from the rest by her size, as well as the figure of her body. On her preservation depends the welfare of the whole commonwealth; and the homage paid her by all the rest of the swarm indicates their great concern for her personal security. If this insect be studiously observed, she will be seen, at times, attended by a numerous retinue, marching from cell to cell, and depositing a small egg in each. The Bees which generally compose her train, are supposed to be those males which serve to impregnate her by turns: they are larger and blacker than the common Bees, but are unfurnished with stings, have no inclination for labour, and seem formed merely to propagate the species, and to attend the queen whenever she thinks proper to issue from the secret retreats of the hive, where she usually resides: on the union of these two kinds, therefore, all expectations of a future progeny depend.

Though the working Bees are of no sex, and only labour for another's offspring, such is their attachment to the queen, that, if she happens to die, they instantly intermit their labours, and take no farther care of posterity. If, however, in this state of general despair, another queen presents herself, they immediately recognize her as their sovereign, and diligently return to their former habits of industry. However, this extraordinary fertility of the queen Bee, and the great deference paid her by the rest, have been controverted by some recent observers; who assert, that the common Bees are parents themselves; that they deposit their eggs in cells previously prepared; and that the females are impregnated by the males, and bring forth a progeny wholly their own.

When the queen Bee has deposited a sufficient number of eggs in the cells, the working Bees immediately undertake the care of the rising posterity; and are observed to leave off their usual employments, in order either to construct proper receptacles for eggs, or to compleat those which are already begun. They purposely build little cells, extremely solid, for the reception of the young brood, in the construction of which they use a great deal of wax. There is usually but one egg deposited in each cell; but, when the fecundity of the queen exceeds the number of cells already prepared, there are sometimes three or four eggs crowded together in the same apartment. This, however, is an inconvenience of which the working Bees will by no means admit: for, being sensible that two young Bees cannot thrive properly in a space assigned for one only, they take care to leave a separate cell for every egg, and either remove or destroy the superfluous ones. This egg is fixed to the bottom of the cell, and touches it in a single point; and, a day or two after it has been deposited, the worm protrudes itself from the shell, and exhibits the appearance of a maggot rolled up in a ring, and lying softly on a bed of a whitish-coloured jelly, on which the little animal begins to feed. The working Bees now attend it with the most anxious and parental tenderness; furnishing it very frequently with a supply of this whitish substance, and watching the cell with unremitting care.

care. Thus attended, and plentifully fed, the worm, in less than six days, arrives at its proper growth, when it no longer accepts the offered food. When the other Bees perceive that it has no farther occasion to be thus fed, they perform the last office of their tender regard, by shutting up the little animal in its cell, and walling up the mouth of its apartment with wax; and, having thus secured it from every external injury, they leave it. No sooner, however, is the worm thus enclosed, than, from a state of inactivity, it begins to labour, extending and shortening its body; and, by this means, lining the walls of its apartment with a kind of silken tapestry, which it spins after the manner of caterpillars before they undergo their last transformation. When the cell is thus prepared, the animal is soon transformed into an aurelia; but different from that of the common caterpillar, as it exhibits not only the legs, but also the wings, of the future Bee, in its present state of confinement. Thus, in about twenty days after the egg is laid, the Bee is completely formed, and fitted to undergo the fatigues of its state; and all its parts having acquired their proper strength and consistence, the young animal bursts from its prison, by piercing with its teeth the waxen door which confines it. When just freed from its cell, it is moist, and seems to be incommoded with the spoils of its former situation; but a band of officious Bees is soon seen to flock round it, and to lick it clean on all sides with their trunks; another, with equal assiduity, is observed to feed it with honey; and a third begins to cleanse the cell that has just been left, to carry the ordure out of the hive, and to fix a place for the new inhabitant. The young Bee, however, soon repays their care by its industry; for, as soon as its external parts become dry, it discovers its natural propensity to labour, and industriously begins its task, which it unremittingly pursues through life.

The little insect, thus properly equipped for duty by its fellow-labourers, and at the same time instructed by nature, goes in quest of flowers; chusing those which are calculated to yield it a supply, and rejecting such as are either destitute of honey, or have been drained already by other adventurers: and, when loaded, is never at a loss to find its way back to the common habitation. After the first sally, it begins to gather the mealy powder that is contained in every flower, and is afterwards converted into wax; and, the very first day on which it commences its labours, it returns to the hive with two large balls of this substance sticking to its thighs.

When the Bees begin to break their prisons, there are generally about a hundred liberated in one day; and thus, in the space of a few weeks, the number of the inhabitants of one hive becomes so great, that there is no room for the new-comers, who are scarcely all excluded from their cells, when they are obliged by the old Bees to issue forth in quest of new habitations: however, while there is room enough in the hive, the Bees remain quietly together; and necessity alone occasions a separation. Sometimes, indeed, the young brood refuse to depart, and even venture to resist their progenitors. The young Bees are distinguished by being browner than the old ones, and by being covered with white hair; and the old ones are of a light colour, with red hair. The two armies are therefore easily distinguishable; and though dreadful battles often ensue between them, the veterans generally prove victorious.

The swarms make their appearance at different seasons of the year, and according to the variation of the climate; of which migrations there are several general prognostics. The night preceding, an unusual buzzing is heard in the hive; and the next morning, though the weather be soft and inviting, they seem not to obey the call, being intent on more important business within: all labour is discontinued in the hive; and every Bee is employed in forcing, or reluctantly yielding, a submission. At length, after some noise and tumult, a queen Bee is chosen, to guard, rather than conduct, the young colony to other habitations; and then they are marshalled without any apparent conductor. In less than a minute, they leave their native abode; and, forming an orb round their protectress, they set off, without seeming to know the place of their destination, or having any preconcerted rout. The usual time of swarming is from ten in the morning till three in the afternoon, when the sun shines bright, and invites them to seek their fortunes. They flutter for a while in the air, and sometimes undertake a distant journey; but more frequently are contented with some neighbouring asylum, the branch of a tree, the top of a chimney, or some other exposed situation.

It is remarkable, that all animals which have been long under the protection of man, seem to lose a part of their natural sagacity in providing for themselves. In those countries where the Bees are wild, and unprotected by man, they are always sure to build their waxen cells in the hollows of trees; but with us they appear improvident in their choice; and the first green branch which stops their flight, is deemed sufficient for their abode. It does not even appear that the queen chuses the place where they are to alight; for numbers of the swarm, when they conceive a predilection for any particular branch, spontaneously settle on it; others follow their example; and at last the queen herself, finding the majority of the swarm convened together, condescends to place herself among them. The queen being settled, the rest of the swarm soon flock around her; and, in about a quarter of an hour, the whole body seems to be perfectly at rest.

It sometimes happens that two or three queens preside over a swarm; in which case the colony is divided into parties: but as one particular queen has generally more influence than the others, the Bees gradually desert the weakest, and shelter themselves under their most powerful protector. The deserted queens do not long survive this treatment; but, taking refuge under the new sovereign, they are soon dispatched through the jealousy of their rival. Till this cruel execution is performed, the Bees never begin their labours; and, should a queen Bee belonging to the new colony be left in the old hive, she is sure to undergo the same fate. However, the Bees never sacrifice any of their queens while the hive is full of wax and honey; for, under such circumstances, they are aware that there can be no danger in maintaining a plurality of breeders.

The swarm being conducted to a place of safety, and the policy of government settled, the Bees soon resume their accustomed labours; and the formation of cells for the reception of honey and of the rising progeny, as well as the impregnation of the queen, now employ their unceasing industry. But, towards the latter end of summer, when the colony is sufficiently stocked with inhabitants, a cruel, though

though necessary, piece of policy, takes place. The drone Bees (generally about a hundred in each hive) are marked for destruction; and those devoted animals, who had hitherto led a life of indolence and pleasure, and whose only employment consisted in impregnating the queen, and rioting on the labours of the hive, without improving the common stock, now share the fate of mere voluptuaries, and fall a sacrifice to the common resentment of the society. The working Bees declare war against them in a body; and, in the space of two or three days, the ground all round the hive is strewed with the dead. Nor are the labouring Bees contented with this sacrifice; they even dispatch such drones as are yet remaining in the cells in their worm-state, and eject their bodies from the hive.

When a hive sends out several swarms in a year, the first is always the best, as well as the most numerous; for, having the greatest part of the summer before them, they have the more time for making wax and honey, and consequently their labours are the most valuable to their proprietor. Though the swarm is principally made up of the younger Bees, those of all ages generally compose the number of emigrants: and as a single hive sometimes contains upwards of forty thousand inhabitants, such a vast body may well be supposed to work with great expedition. Such, in fact, are their exertions, that in less than twenty-four hours they often form a series of combs twenty inches in length, and seven or eight in breadth; and they not unfrequently fill their hives with wax in less than five days. Generally, however, the first fifteen days are employed in making wax.

Columella directs, that the apiary, or Bee-garden, be situated so as to face the south; that it be in a valley, that the loaded Bees may with greater ease descend to their homes; that it be near the habitations of men, on account of the convenience of watching them, yet so placed as not to be exposed either to noisome smells or the disturbance of men or cattle; that it be surrounded with a low wall; and that, if possible, a running stream be near it. A farm, however, or even a country, may be overstocked with these industrious animals; for a certain number of hives always require a proportionable quantity of flowers for the subsistence of the Bees they contain.

When the flowers in the vicinity of the hives of these insects are all rifled, they are of course obliged to take more extensive ranges: but their indefatigable abilities may be over-tasked; for they frequently either become weary in the pursuit, are devoured by birds, or beat down by the wind and rain. From this consideration, in some parts of France and Piedmont, the natives have constructed a kind of barge, capable of containing from three-score to a hundred Bee-hives, and well defended from the inclemency of an accidental storm; and with these the owners suffer themselves to float gently down the stream. As the Bees are continually chusing their flowery food along the banks, they are furnished with sweets before rifled; and thus a single floating Bee-house, during a favourable season, amply repays the care of the proprietors, by yielding a considerable return of honey. Were this method adopted in England, as our rivers are less rapid, and their banks more flowery than those of most other countries, such an employment might probably yield the assiduous swain an easy and comfortable maintenance; while the advantages resulting from it would be proportionably great.

Bees collect two sorts of wax; the one coarse, and the other fine. The coarser sort is the best, and is generally distinguished by the name of propolis; with which, as before observed, these industrious insects stop up all the holes and crevices of their hives. Being much more resinous than the finer wax, it is consequently better adapted to resist the moisture of the season, as well as to preserve their works warm and dry within. The fine wax is as necessary to the preservation of the Bees as the honey itself; for with it they construct their lodgings, and cover the cells of their young; and in it they deposit their stores of honey.

There are also two kinds of honey; the white and the yellow: the white is taken from the honeycombs without the assistance of fire; while the yellow is extracted by heat, and squeezed through bags, in a press. The best honey is new, thick, and granulated; of a clear transparent colour; of an aromatic smell; and of a sweet lively taste. The honey of mountainous countries is preferable to that of champain ones; and the honey made during the vernal season is more highly esteemed than that gathered in summer; while the last is still more valuable than that of autumn, when the flowers begin to fade, and consequently to lose their balmy fragrance. Nothing, however, can be more inhuman than the modes usually adopted in order to the possession of this valuable treasure. Were we to kill the hen for it's egg, the cow for it's milk, or the sheep for it's fleece, all would instantly perceive how much we acted contrary to our own interests; and yet a conduct in some measure similar is practised yearly with respect to the industrious Bees. Would it not be more wise, as well as more humane, to content ourselves with taking away a portion of their wax and honey, as is the practice in several other countries? With us, when a hive has been doomed to destruction, a hole is dug near it, and a stick, at the end of which a rag smeared with melted brimstone is affixed, is drove into it: after which the rag is set on fire; and the hive being placed over the flame, the earth is instantly thrown up all around, that none of the smoke may escape. In a few minutes all the Bees appear as if dead; and, in a little more time, they would be irrecoverably so: but it has been proved by experiment, that those Bees which have only been affected by the fumes of the brimstone recover again; and hence it seems certain, that the fumes of brimstone, with some necessary precautions, might be used for the purpose of intoxicating Bees. In this inhuman manner the heaviest as well as the lightest hives are treated: the former, because they yield the greatest profit, with an immediate return; and the latter, because the insects would not be able to survive the winter.

The practice of the ancients, however, with respect to the treatment of Bees, was very different: they were content to share with these industrious insects the produce of their labours; and some very laudable attempts have been made in this country to attain the desirable end of securing the wax and the honey without destroying the Bees. In 1665, John Geddy, Esq. published his invention of boxes for preserving the lives of Bees: these were improved by Dr. Warder; who embellished his account of the structure and use of these boxes with many curious circumstances respecting the œconomy of Bees. In the same laudable track followed two very ingenious divines; viz. Mr. John Thorley, of Oxford; and Mr. Stephen White, of Holton, in Suffolk; who carried the method of preserving the

lives of Bees to a still higher degree of perfection. Mr. Wildman, likewise, so universally known and admired for his curious experiments on this tribe of insects, has obliged the world with the following method, by which the wax and honey may be obtained without destroying the Bees.

'Remove,' says he, 'the hive from which you wish to take the wax and the honey, into a room considerably darkened, that it may at first appear to the Bees like the dusk of the evening. Gently invert the hive, placing it between the frames of a chair, or any other steady support; and cover it with an empty hive, a little raised, to give the Bees sufficient light to get into it. While you hold the empty hive, steadily supported on the edge of the full hive, between your side and your left-arm, keep striking with your other hand all round the full hive from top to bottom, in the manner of beating a drum; so that the Bees may be frightened by the continual noise from all quarters; and, in consequence thereof, they will mount out of the full hive into the empty one. Repeat the strokes rather quick than strong round the hive, till all the Bees have changed their abode, which will generally happen in about five minutes. It is to be observed, that the fuller the hive is, the sooner the Bees will have left it. As soon as a number of them have got into the empty hive, it should be raised a little from the full one, that the communication between them may not be stopped. When all the Bees have left the full hive, the other, in which they have taken shelter, should be placed on the stand from which the former hive was taken, in order to receive the absent Bees, as they return from the fields.

'If this be done early in the season, the operator should examine the royal cells; for if any of them contain young Bees, they must, as well as all the combs containing them, be saved in the hive. Take out the other combs with a long, broad, and pliant knife; cutting them from the sides and crown as clean as possible, to save the future labours of the Bees, who must lick up the honey spilt, and remove every grain of wax: the sides of the hive should then be scraped with a table-spoon, in order to clear away what has been left by the knife. Thus, having separated the wax and honey, let a table, covered with a clean cloth, be placed near the stand; and, giving the hive in which the Bees are contained a sudden shake, striking it at the same time pretty forcibly, the Bees will be shaken on the cloth. Put their own hive under them immediately, raised a little on one side, that the Bees may more easily enter; and, when all have recovered their original situation, place it on the stand, as before. If the hive in which the Bees are contained be turned uppermost, and their own hive placed over it, the Bees will immediately ascend into it, especially if the lower sides be struck, in order to alarm them: for the effects of fear impressed on the Bees by the continual noise, render them for a considerable time so mild and tractable, that they will bear any handling which does not sensibly hurt them, without any indications of resentment.'

Though Bees are nearly alike in all parts of the world, there are some variations which a naturalist ought to observe. In Guadaloupe, they are less by one half than those common to Europe, being blacker, as well as rounder: they have no stings; and they build their cells in hollow trees, where, if the holes they meet with are too large, they construct a sort of waxen-houses, shaped like a pear, in which they lodge their store, and deposit their

eggs. They place their honey in waxen vessels of a deep black or violet colour, and about the size of pigeons eggs; and these are so united, that there is no space left unoccupied. The honey never congeals, but remains always in a fluid state, of the consistence of oil, and the colour of amber.

In all the tropical climates there are found little black Bees without stings; and though these countries seem replete with Bees like our own, the former are the most useful and laborious tribes in that part of the world: the honey they produce is neither so unpalatable, nor so surfeiting, as ours; and the wax is so soft, that it is only used for medicinal purposes, never acquiring a consistence sufficient to be made into candles.

In every country of Europe, indeed, there are several tribes of insects distinguished by the names of Bees; which, however, differ very considerably from the social and industrious race already described.

BEE, HUMBLE. The largest of all this tribe is near three quarters of an inch long, and a third of an inch broad; the body, except the back-part about the vent, which is white, is black and hairy; and the fore-part inclines to a yellow. These insects are seen in every field, and perched on every flower. They build their nests in holes of the ground with dry leaves intermixed with wax and wool, and defend themselves from the inclemency of the weather with moss. Each Humble Bee builds a separate cell, about the size of a small nutmeg, which is round and hollow, and contains the honey in a bag. Several of these cells are joined together in such a manner as to give the whole the appearance of a cluster of grapes. The females, which have the appearance of wasps, are but few, and deposit their eggs in cells, which the rest soon cover over with wax. It is uncertain whether this tribe has a queen; but there is one Bee much larger than the rest, destitute of wings and hair, and all over black like polished ebony: this female views all the works from time to time; and frequently enters into the cells, as if desirous of knowing whether the business of the rest of the Bees is properly transacted. In the morning, the young Humble Bees are very idle, and seem averse to labour, till one of the largest thrusts half its body from a hole designed for that purpose; and, being seated on the top of the nest, beats its wings for twenty minutes successively, buzzing, without intermission, till the whole colony is put in motion.

The Humble Bees collect honey, as well as the common ones; but it is neither so fine nor so good; nor is their wax so clean, or so capable of fusion.

The green and yellow Bee is the most beautiful of this species. It is shaped like the common Bee, but is considerably smaller. The head and breast are of a fine bright blue colour, with an admixture of green; the body is of a beautiful glossy yellow, and looks as if gilt; the breast, and the last segment of the body but one, are dentated behind; and the feelers, which are black, are composed of twelve joints.

BEE, WOOD. This species of Bee is somewhat larger than the female of the common sort. Their bodies are of a very deep blue colour, smooth, and shining; their fore-wings are of a deep violet colour; on their sides, the hinder-part of their bodies, and their breasts, there are long black hairs; and their trunks resemble those of the common Bees.

Though

Though the Wood Bees are by no means numerous, there is scarcely a garden where some of them may not be found at different seasons of the year. They make their first appearance at the close of winter, when they are frequently seen flying near such walls as are exposed to the sun. They generally form their nests in pieces of half rotten wood: and the holes are not made directly forward, but inclining to one side, and having apertures large enough to admit the middle-finger; from which run their inner apartments, each generally twelve or fifteen inches long. These cavities they bore with their teeth, and generally diverge them into three or four different rooms; in each of which they deposit ten or twelve eggs, which are involved in a sort of paste, serving for the protection of the young animals, as well as for their nourishment. When they turn to worms, they are very white; the nymphs which proceed from them are of the same colour, but afterwards turn brown, and then blackish, by degrees. The females perform all the labour; and the males have no stings. These Bees, when grown up, feed upon a sort of lice of a reddish brown colour, each about the size of the head of a small pin.

BEE, MASON. The Mason Bees construct their cells of a kind of mortar made of earth, against those walls which are exposed to the sun. This mortar, which is at first soft, soon becomes as hard as stone; and the eggs being laid in this cement, undergo the same metamorphosis as those of the common Bees, each nest or lodging consisting of several cells. Some of these Bees are red, and others black; but they are all nearly of the same size, being about the length of drones, though of inferior thickness.

The black Mason Bees are armed with stings; but the red, being those males which are exempted from labour, have none. The liquid of which this mortar is composed proceeds from their mouths, and serves to glue one particle of earth to another. Externally their nests are rough, but internally they are extremely smooth. Each cell is about an inch in height, and near half an inch in diameter; and to these cells the females carry the food necessary for their young, which is a sort of paste like that of the wood Bees.

In general, a nest consists of seven or eight cells; but sometimes of only three or four, one cell being placed over another. If the nest wants but few repairs, the insects make use of it the following year, and sometimes three or four years successively. They begin to build about the middle of April, and sometimes find great difficulty in completing their work by the end of June; and though, from the apparent strength of their houses, it might naturally be supposed that these Bees lodged in perfect security, no insects whatever are more exposed; for a kind of worm, with very strong teeth, frequently insinuates itself into their little fortifications, and devours the young.

There are many Bees of this species which, by making choice of sheltered places, form their houses with less durable materials than the former. They select stones with holes in them large enough to admit their whole bodies; and when the apertures happen to be too wide, they stop up part of them with mortar, and make them exactly round. These Bees are covered all over with a fine down, of two colours; that on their bodies being a kind of orange, while that on their breast-plates is quite black. Their trunks are small, and formed like those of the

common Bees; but their teeth resemble the blades of scissars, except that they are serrated. They have two horns, or feelers, on the fore-part of their heads, which are inflexible. Their paste is more liquid than that of the real Mason Bees; and they always stop up the holes of their cells with the same sort of earth which composes their nests.

BEE, GROUND. The Ground Bees build their nests in the earth; making round holes five or six inches deep, the mouths of which are so narrow, as barely to admit their little inhabitants. It is, indeed, curious to observe the patience and assiduity with which these insects labour: they carry out all the earth, grain by grain, to the mouths of their holes, where it forms a little hillock; an Alps, indeed, if compared with the magnitude of the artists by whom it is raised. Sometimes the walls of gardens are undermined by their labours; some of their holes running directly downward, and others horizontally beneath the surface. Like the former sorts of Bees, they deposit in those cavities provisions for their young; though of a very different nature, as they have the appearance of corn, and possess a saccharine taste.

Some of the Ground Bees are not so large as small house-flies; while others are equal in magnitude to the common Bees. Some of them are of an oblong shape, and others short. Those which form their nests in the narrow walks of gardens are small, but have the appearance of common Bees; while others are black, with wings of a deep violet colour, and a little whitish down or hair on the insides of their thighs.

BEE-FLY. This insect forms a species of itself, being of a middle nature between the common Bee and the fly. The trunk differs from that of the common Bee, the greatest part of it being hid in a kind of shelly sheath; and, when protruded, it is accompanied with a sort of threads, four in number, but at other times it lies concealed beneath the teeth: under these threads there is a sort of fleshy prominence, the real tongue of the fly, with which it licks its trunk. The body is longer than that of any other Bee; and the rings, which compose the trunk nearest the breast-plate, are reddish on the superior parts.

These Flies have their nests in the ground, nine or ten inches deep: and the females are armed with stings; but the males, which are distinguished by their superior magnitude, have none.

BEE, LEAF-CUTTING. The Leaf-Cutting Bees build their nests, as well as lay their eggs, among bits of leaves, very artificially placed in holes in the earth, of a finger's length. To these bits of leaves they give a cylindrical form; and with them they line the insides of their habitations, and afterwards cover them with paste of a reddish colour, which has something of a sweetish taste a little inclining to acid.

Of these Bees there are several species, all distinguished by one common character, that of being short. Those which build their nests with the leaves of the chestnut-tree are as big as drones; while those which make use of rose-tree leaves are smaller than the common Bees; and, through their downy coverings, their bodies appear semipellucid. The colour of the upper-part of their bodies is a brownish black; except that on each side there is a tuft of hair almost white. The colour of the extremities of their bodies is a blackish brown, as well above as below; but the three rings next to them are covered, on the belly part, with long

long hairs of a cinnamon colour: and those of the croset are brown. The species which shews a predilection for the leaves of the chefnut, is red above, and of a whitish-grey underneath.

There are two or three more species of the Leaf-Cutting Bees; the trunks of all which are constructed like those of the common Bees, except that they are covered above, as well as on the sides, with a strong shelly case, which serves to prevent the attrition of their trunks by the edges of the leaves while they are dividing them.

The males are somewhat less than the females, and more pointed behind; and, when pressed by the fingers, six small horns proceed from them, three on each side. Each of their teeth is terminated by a hook, sharp at the end, and serrated on the sides.

When the female of this species has finished her nest, she fills it up with paste, lays her egg, and then closes it up. When the egg is grown to a proper size, the insect weaves a silken shell, which adheres to the sides of the leaves: the exterior part of the silk is coarse, and as brown as coffee; but the inside is very fine and white, being smooth and shining like satin.

BEE, WALL. The Wall Bees make their nests of a kind of silky membranes, with which they fill up the vacuities between the stones in walls. They consist of several cells, placed end to end, in the shape of thimbles. Though the webs of these membranes are very close, they are transparent, and of a whitish colour. It is supposed that the Bees spin these webs with a glutinous substance extracted from their bodies, almost in the same manner as silk-worms. They are rather less than common Bees; but, like them, have a croset of red hair; and the rings of their bodies are of a brown colour bordered with white hair. They resemble the leaf-cutting Bees in shape; and their trunks are short and thick, but largest at their extremities, and a little cloven: transverse rays or streaks are formed by short hair on the upper parts, and a kind of longish hair borders the turn of the hollow ones. With respect to size, the males and females are exactly the same; but the former are destitute of stings. The feet of these Bees seem adapted for digging the earth; for they have two points, one at the end, and another somewhat shorter; forming together a kind of fork with unequal prongs.

BEE, TAPESTRY. The Tapestry Bees obtain their name from the circumstance of their lining their nests with a species of tapestry, collected from the flowers of the wild poppy when newly blown, bits of which they place at small intervals from each other. They generally build their nests by the sides of highways and paths in corn-fields. They are shorter in proportion than the common Bees, but nearly of the same colour. Like several other species already mentioned, they fill their nests with paste for the nutrition of their young.

BEE-EATER. This bird is of the shape of a king's-fisher, and about the size of a blackbird. The bill is like that of the halcyon tribe, except that it is a little more incurvated; and the feet are exactly like those of the king's-fisher. The tongue, which is slender, rough, and jagged towards the end, appears as if it were lacerated. The eyes, in some of these birds, are of a hazel colour, and in others of a beautiful red. The head is large and oblong; and the feathers at the base of the upper-chap are white, shaded with green and yellow. The back part of the head, in some, is of a deep

red; and in others there is a mixture of green among it. From the corners of the bill, along each side of the head, runs a black streak, which extends beyond the eyes; and near it, on the upper-part of the head, the feathers are of a pale yellow. The belly, neck, and breast, are of a blueish green; and the feathers on the shoulders, in some, are blue; on the under-wing, in others, green, with an admixture of red. The large wing-feathers are of a colour inclining to orange, with black tips, intermixed with some which are green. The tail is upwards of three inches in length; and consists of about twelve feathers, the two middlemost being longer than the rest, and terminating in sharp points. The colour of the tail varies; being green in some, in others blue, and of a darkish brown underneath. This bird is a native of Bengal in the East Indies, and several other countries.

In the East, and particularly in Bengal, there is another species about the same size; with a black bill, thick at the base, bending downwards, and near two inches long. The eyes are of a fine red; and on each side of the head is a black streak, which, beginning at the corner of the mouth, extends beyond the eyes; the base of the upper-chap, as well as that part which is under the chin, is covered with bright pale blue feathers; the upper part of the head, and the back and wings, are of a dusky yellow; the tips of the quill-feathers are brown; the breast and belly are green; and the under-part, near the vent, is of a pale yellow, with a small mixture of green. The outermost feathers of the tail are variegated with green and yellow; the two middlemost feathers being twice as long as the rest, and terminating in sharp points of a brown colour. The legs and feet are like those of the king's-fisher.

BEE-EATER, INDIAN. This bird is only half the size of the European Bee-Eater, or the merops; and the middle feathers of its tail are considerably longer. The bill is pretty long and sharp-pointed, with a downward incurvation; the upper mandible is black or dusky, and the lower whitish at the base; the beginning of the forehead next the bill is blue, of which colour likewise are the throat and sides of the head beneath the eyes; and the crown and hinder parts of the head and neck are of a red or orange colour. On the upper part of the breast there is a transverse mark in the form of a crescent, with the horns pointing upwards; the back, and lesser covert feathers of the wings, are of a parrot-green colour; the rump, or coverts of the tail, are of a blueish green; the breast and belly are of a light green; the thighs are of a reddish brown; and the coverts beneath the tail are of a dirty green. The greater quills of the wings are dusky at their tips, having a little green on their edges towards the base; the centre quills are of an orange colour, bordered with green marked with black spots a little within their tips, the extreme tips being orange; the interior quills next the back are wholly green; the first row of coverts above the quills is orange in the centre, and green on the edges. The tail is green; the shafts of the feathers are brown; the two centre feathers project more than two inches beyond the rest, are brown at the tips, and very narrow, being little more than the naked shafts; the under-side of the tail is of a dusky green; the legs are short; the three forward toes are partly connected together; the claws are pretty strong; and the legs and feet are of a dusky brown colour.

BEET-FLY. The name of a very small fly which usually frequents the leaves of the beet.

BEETLE. The English name for the scarabæus, a genus of insects having two transparent wings, with cases which cover them close while at rest, but which allow them their proper play when flying. These insects, like the rest of the order, are all produced from eggs: they then become grubs; afterwards they are changed into chrysalides, in which state the parts of the future animals are distinctly seen; and, lastly, the Beetles, leaving their prisons, fly forth as winged animals in full maturity.

The species of Beetles, properly so called, are extremely numerous: all of them, however, concur in one common formation of having cases to their wings; which are the more necessary for these insects, because they often live under the surface of the earth in holes excavated by their own industry. These cases guard the real wings from the various injuries which they might otherwise sustain by rubbing against the sides of the abode of the Beetles; and, though they do not assist the insects in their flight, they keep their internal wings clean and smooth; and from them that buzzing noise proceeds which is always heard when the animals ascend into the air.

As in shell-fish, the bones of all animals of the Beetle kind are placed externally: and their muscles, which are all internal, are formed very much like those of quadrupeds; and, considering their size, are endued with surprizing strength. The power derived from these muscles is peculiarly serviceable to the insects in digging their subterraneous abodes, where they are most usually hatched, and to which they generally return, even after they have become winged insects, and are capable of ranging the sky.

The varieties of this genus arise not only from a difference of shape and colour, but also from their magnitudes; some Beetles being no larger than the head of a pin; while others are of the size of a man's fist. Their most essential difference, however, proceeds from the stages of their existence; some being produced in a month, and in a single season undergoing all their transformations; while others require near four years to compleat their production, and live in a winged state for a whole year after.

BEETLE, ELEPHANT. This is the largest species of the Beetle kind hitherto known; and is found in South America, particularly in Guiana and Surinam, as well as about the River Oroonoko. It is of a black colour; and its whole body is covered with a very hard shell, quite as thick and as strong as that of a small crab; its length, from the hinder part of the eyes, is almost four inches, and from that to the extremity of the proboscis, or trunk, four inches and three quarters; the transverse diameter of the body is two inches and a quarter; and the breadth of each elytron, or case for the wings, is, an inch and three-tenths; the antennæ, or feelers, are quite horny; for which reason the proboscis, or trunk, is moveable at its insertion into the head, and seems to supply the place of feelers; the horns are eight-tenths of an inch long, and terminate in points; the proboscis is an inch and a quarter long, and turns upwards, making a crooked line terminating in two horns, each of which is near a quarter of an inch long, but they have no perforations, like the trunks of other insects. About four-tenths of an inch above the head, or that side next the body, there is a pro-

minence, or small horn, which, if the rest of the trunk were taken away, would cause this part to resemble the horn of a rhinoceros; and the feet are all forked at the end.

BEETLE, RHINOCEROS. There are several varieties of this species; one of which, a native of the East Indies, is of a jet-black colour, and has a horn on its nose, which turns upwards; and about the middle of its belly there is another horn, which arises from a tubercle, and turns inwards. The whole length of the body of the animal, from the extremity of the horn to the back-part, is four inches, and the breadth is almost two: it has also two horns behind the snout; and six feet, or legs, forked at the ends.

There is another Rhinoceros Beetle common about Vienna, in Germany. The horn has a strong resemblance to that of the rhinoceros, as it turns up, and is sharp-pointed; it has a prominence behind the head; and, like the former, it has six feet. The whole body of this insect, except the belly, which is of a deep red colour, is as black and shining as pitch.

A third and fourth variety of the Rhinoceros Beetles have almost the same shapes; except that the wings of the former exceed the cases in length, while in the latter they are shorter. They appear as if covered over with a shining ink; and the horns on their heads are full of knots: their heads are of a greenish gold-colour; and their shoulders are red; but their bellies are purplish; and the cases of their wings are of the same colour as their heads. Their feet and legs are of a dun colour; and the wings under the cases are whitish.

BEETLE, STAG. This insect is about an inch long, and half an inch broad; and has two horns without joints, but ramified like those of a stag; from which peculiarity it receives its name. It is furnished with nippers at the extremity of the snout, not much unlike the claws of lobsters, with which it can pinch small objects. The eyes are hard, prominent, and whitish; and near them, on both sides, there are two pair of feelers. One pair of these feelers are branched, and placed between the horns and the eyes, having each a joint, and forming nearly a right-angle: the other pair, which are straight and flat, are placed in the centre of the forehead, having a tubercle at their extremities like the head of a nail. The animal has six feet, of which the foremost pair are longer and thicker than the rest. This Beetle is of a dusky-brown colour, or rather blackish on the back, especially near the cases of the wings and breast; and the horns, which are sometimes as red as coral, give the animal a very singular and beautiful appearance. It is common in Kent and Sussex; and is sometimes seen in other counties of England.

BEETLE with lunated, prominent, and dentated jaws, and a smooth breast. This insect is about an inch long, and two-thirds of an inch broad; the thorax is smooth, convex, and black, without any prominencies, but a sort of an edge; the cases of the wings are smooth, and of a blackish-purple colour; and the jaws, which are in the form of a crescent, are prominent and black, and have two teeth in each. It feeds on the decayed parts of the trunks of ash trees, and burrows in the ground under their roots.

BEETLE, BRASS. This insect, which is one of the larger species, has a short, broad breast; its shape is in general disproportionably broad; the eyes are small; the legs are long and slender; and

the whole body is of a fine shining green, with a slight mixture of yellow. It frequents gardens, but is rather scarce.

BEETLE, with clavated feelers, and the cases of the wings on the fore-part. This species, which is small, has a black head and breast: the cases of the wings are grey towards the top; but, in other parts, are of a dusky blackish brown, with transverse streaks of white. It feeds on the carcases of dead animals, and particularly of birds. Some naturalists call this species *dermestes*.

BEETLE, GREEN TORTOISE, with clavated annulated feelers. This animal has a small oval body, convex on the back, and flat on the belly; the upper part consists of the cases of the wings and the shield; the feelers are of a pale colour, but somewhat deeper on their tops than elsewhere; the legs are of a pale brown; and a kind of a prominent ring runs round the cases of the wings, which entirely cover the body. It feeds on mint, and other herbs; and is common in most gardens. Linnæus calls Beetles of this kind *cassida*, from their shields.

BEETLE, SHIELD, or BLACK *CASSIDA*, with bristly feelers, and a roundish body. This Beetle, which is of a dusky black colour, is frequently found in houses, where it is sometimes very mischievous, eating holes in woollen-cloths and stuffs. The cases of the wings are oblong, and lightly streaked with several very small concave spots; the shield is roundish, rough on the upper part, with a cruciated prominent edge; sometimes two spots appear on the side towards the hinder part, covered with yellow hairs; and the belly is blackish. Whenever this insect is touched, it draws up its head and wings under its body.

BEETLE, SHIELD; or, OVAL PALE CLOUDED *CASSIDA*, with an undivided shield covering the head. This insect is very small; its body is of an oval shape, and of a pale brown colour, spotted and clouded all over with one of a more dusky hue, which gives it a distant resemblance to a tortoise-shell: its shield, which is shaped like a crescent, is of a pale colour, without spots; the cases of its wings are streaked and speckled, the streaks running in crooked lines; its body is black; and its feelers are black and slender. Beds of baum or mint are the common haunts of this insect.

BEETLE, LADY-COW, with reddish cases for the wings, and seven black spots on them. This beautiful and well-known insect has a black head, with two white spots on the forehead; and a black breast, which is whitish near the margin: the cases of its wings are of an orange colour; and towards the base of each there are three black spots, and one which is common to both. The feelers of this insect are small and clavated; and its under-part is wholly black.

BEETLE, LADY-COW, with red cases for the wings, and two black spots on them. This species has a black breast, excepting that there is one large spot on its edge, and two very minute ones near the base, and also two others of the same size at the insertion of the feelers; the belly, feelers, and legs, being black. This Beetle is commonly found on alder-trees.

BEETLE, LADY-COW, with black cases for the wings, and four red spots on them. The breasts of this species are entirely black, and the spots on the cases of their wings are of a blood-red colour, those nearest the breast being the largest. These insects live on maple-trees in the north of England; but are sometimes seen, though seldom, in the hedges near London.

BEETLE, FLYING, of the West Indies. This species, called *acudia* by the natives, has a luminous appearance, and is almost as big as a wren. It has four shining spots; two of which are placed near the eyes, and two under the wings.

BEETLE, AMERICAN BALL. This Beetle, to which the Americans give the appellation of *tumble-dung*, is an exceedingly curious insect. It is wholly of a dusky black colour, but rounder than the generality of those animals; and, though not much larger than the common black Beetle, is so very powerful, that if placed under a large brass candlestick, it will occasion its moving backwards and forwards, as if agitated by an invisible hand, to the great admiration of those who are unaccustomed to the sight. But such amazing strength seems to be imparted to the insect for a more valuable purpose than that of exciting human curiosity; for there is hardly any animal more industrious, either in providing the means of subsistence, or a secure retreat for its young. It is enabled to discover its proper food, the excrements of men or beasts, by means of its exquisite sense of smelling; on which it instantly drops, and begins to form round balls or pellets of the ordure, depositing an egg in the centre of each. About the month of September, it buries these pellets three feet deep in the earth, where they continue till the approach of spring; when the eggs are hatched, the nests burst, and the insects make their way from their subterraneous retreats. They indefatigably assist each other in rolling these globular pellets to the place where they are to be buried; and this they perform with a retrograde motion, raising up their hinder-parts, and shoving along the balls with their hind-feet. They are always accompanied by Beetles of a larger size than themselves, and of a more elegant structure and colour, whose breasts are covered with shields of a crimson colour, and shining like metal; their heads are of the same colour mixed with green, and furnished with glossy black horns, bent backwards: they are called the kings of the Beetles; but for what reason is uncertain, as they are employed in the same filthy labour as their companions.

BEETLE, CAPRICORN, or GOAT-CHAFER. This species is about the size of the stag Beetle, and of the same colour. The head is broadish; the eyes are large; the mouth, which is wide and forked, contains two exceedingly hard crooked teeth, with which it gnaws wood, making a noise like the grunting of a pig; the shoulders appear as if they were carved, and have hafts of the colour and polish of ebony; and the animal has six legs, three of which are furnished with joints so very weak, that they bend with the weight of the body. It has two horns growing above the eyes, consisting of ten flexible joints, not exactly round, but rough like those of a goat, and longer than its whole body: these horns are moveable in any direction at the pleasure of the insect, except that, in the act of flying, they are thrust directly forward; and, when it is weary, they are used instead of feet. This Beetle, when at rest, generally suspends its body from the branch of a tree by means of its horns or feelers.

BEETLE, LARGE GREEN CAPRICORN, musk-scented. This is a most beautiful insect, its whole body being of a glossy blue-green colour, with a cast of a shining gold-yellow. The wings under the cases are black; the legs are of a blueish green hue; the breast is pointed at each extremity; and between these points there are three small tubercles near the wings, and three still smaller towards the head. The cases of the wings are oblong, and somewhat

somewhat like a lance, with three ribs a little elevated, and running lengthwise; the feelers are nearly of the same length with the body, and are composed of many small joints, decreasing in size towards the ends. This Beetle frequents willow-trees, and has a sort of musky smell.

BEETLE, RUSSIAN CAPRICORN, with very long horns. This Beetle is about three quarters of an inch long, and wholly grey. The cases of the wings, which are blunt, are covered with many small hairs, among which several small tubercles are interspersed; a dusky shade runs across the wings, which at the hinder part has an inclination to the centre; the breast is pointed at each end, and has four beautiful yellow spots towards its hinder part; the eyes are black; and near the feelers, which are five times the length of the body, there is a black spot. These feelers are grey, and consist of ten joints, which shorten as they approach the head; and the wings are black, streaked with brown. This insect is found among old wood, but seldom in this climate.

BEETLE, BLACK CAPRICORN, with a hairy grey breast. The body of this insect, which is oblong, and somewhat depressed, is of a black colour, with a slight mixture of grey, and covered with many short hairs, having prominent tubercles between them; the breast is hairy and black, though the white hairs give it a greyish appearance; and on the hinder parts are two smooth prominent spots; the feelers are slender and black, and about half the length of the body; and there is an undulated line on the case of the wings, but so faint as to be scarcely perceptible. This Beetle lodges among timber, but is not very common in England.

BEETLE, UNICORN. There are several varieties of this species: which, however, may be placed under two divisions; the first having sharp protuberances in the breast, and the other none. Of the first division, besides those already described, are the black Unicorn Beetle; the reddish Unicorn Beetle; the black Unicorn Beetle, with irregular pale spots on the cases of the wings; the grey Unicorn Beetle spotted with black; the grey Unicorn Beetle with black cases to the wings, spotted with white; the grey and black Unicorn Beetle; the grey capricorn Beetle; and the shelly capricorn Beetle.

Of the second division, or such as are destitute of protuberances, are, the black capricorn Beetle; the shelly capricorn Beetle; the shelly capricorn Beetle, with a smooth breast; the brown capricorn Beetle; the grey capricorn Beetle; the black capricorn Beetle, with a longitudinal dentated line and yellow spots on the cases of the wings; and the shining violet-coloured capricorn Beetle.

BEETLE, VIOLET BLACK DUNG, called by Ray the greater Beetle. This animal has an oblong body, of a purplish black colour; a small head; large prominent eyes; and long and very slender feelers. Its general colour is black, except that the edges of the breast and wings are of a beautiful deep glossy purple; the cases of the wings have neither dots nor lines, but only a kind of wrinkles running lengthwise, and crossed by others which are scarcely perceptible. This Beetle frequents dung-hills and putrid vegetables.

BEETLE, PURPLISH BLACK DUNGHILL. This species is of the large kind; the general colour is blackish, with a strong and very fine tinge of glossy purple; the body is of an oblong shape, and pretty thick; the cases of the wings are marked with three lines, each of which is formed by a row of about

twelve longitudinal concave yellow spots, and the lines between them are hollowed. It is generally found in dunghills, and amongst various putrid substances.

BEETLE, DUNGHILL, BLACK, with reddish legs. This species is scarcely larger than a common fly; the colour of the body is black; the breast is broad and short; the cases of the wings are streaked with eight lines; and the legs and bases of the feelers are of a reddish brown. Some naturalists give this insect the name of the burn-cow, or burst-cow, with a black body and red legs.

BEETLE, SMALL GILDED. This very beautiful insect, which frequents the banks of rivers, is of a fine glossy colour, resembling a yellow metal, with a little mixture of green. The eyes are black and prominent; the breast is narrow, and rounded; and the cases of the wings are adorned with many broad hollow specks, each of which has a prominent point in its centre: these hollow specks, which are arranged in rows, are of a deep-black colour; but their bases are of a fine metalline yellow.

BEETLE, BURN-COW, OR BURST-COW. This insect has filiform feelers; and its head, which is half hid within its breast, is of a roundish shape. Of this species there are several varieties; viz. the yellowish green Burn-Cow, the yellowish black Burn-Cow, the brownish brassy Burn-Cow, the brassy and clouded Burn-Cow with clavated feelers, and the Virginian Burn-Cow. These varieties differ from each other more in their magnitude and colour than in any particular conformations or habits: they are very troublesome to cattle; and chiefly frequent the banks of rivers, or other places where reeds abound.

BEETLE, DORR; OR MAY-BUG, as it is called in some parts of England. This insect is one of the most curious, as well as most numerous, of all the Beetle tribe. Like the other species, it is furnished with cases to its wings, of a reddish brown colour, sprinkled with a whitish dust, which is easily rubbed off. At some seasons, its neck appears with a red plate; and, at others, with a black one: these, however, are distinct sorts, and the variation is by no means accidental. The fore-legs, which are very short, are calculated for burrowing in the ground, where this insect forms its retreat. These Beetles are very formidable to husbandmen; for, at some seasons, they have been known to swarm in such numbers, as to consume every vegetable production. The two sexes in the Dorr are easily distinguished from each other by the superior length of the tufts at the extremities of the horns in the male. They begin to copulate in summer, when they are observed together for a considerable time. The female, after being impregnated, quickly begins burrowing in the ground, in order to deposit her burden. She makes a hole about half a foot deep, in which she places her eggs, which are of an oblong shape, with great regularity. When she has laid her whole quantity, she again ascends from her hole, and returns to her former way of life, finding subsistence on leaves and vegetables; and generally lies hid during the heat of the day among the branches of trees, hardly ever venturing abroad till the dusk of the evening.

The eggs having laid about three months in the ground, the inclosed insect begins to burst its shell; and a small grub or maggot crawls forth, and feeds upon the roots of the nearest vegetables. All substances of this kind seem equally grateful to the animal; though it is probable that the mother-

ther-insect chuses what kinds of vegetables she thinks proper, among which to deposit her young.

In this state these voracious creatures continue for more than three years, devouring the roots of every plant they approach, and making their way under-ground, in quest of food, with great dispatch and facility. At length they grow to above the size of walnuts; being large, thick, and white maggots, with red heads, and most commonly discovered in new-turned earth, and which is eagerly sought after by birds of every species. When they have attained their full proportions in the maggot state, they are about an inch and a half long, their bodies being composed of twelve segments or joints, on each side of which are nine breathing-holes, and three red feet. Their heads are large in proportion to their bodies, and of a reddish colour, with pincers before, and semi-circular lips, with which they cut the roots of plants, and extract their moisture. As the insects, while in this state, live continually under ground, they have no occasion for eyes, and accordingly nature has not provided them with any; but they are furnished with two feelers, which serve to direct their motions.

About the end of the fourth year, the Beetle Dorr prepares to emerge from its subterraneous abode; and, at the latter end of autumn, the grub, beginning to perceive the approach of its transformation, buries itself deeper and deeper in the earth, sometimes six feet beneath the surface; and there forms itself a capacious apartment, the walls of which, from the excretions of its body, are rendered very smooth and shining. Its abode being thus formed, it soon begins to shorten itself, to swell, and to burst its last skin, in order to assume the form of a chrysalis, which at first appears of a yellowish colour; but, being heightened by degrees, at last becomes nearly red. Its external form now plainly discovers all the vestiges of the future winged insect, its fore-parts being distinctly seen; while the animal, when viewed behind, appears as if wrapped up in swaddling-cloaths.

In this state the young Dorr continues for about three months longer; but the aurelia does not divest itself of all its impediments, and become a perfect winged insect, till the beginning of January. Still, however, the animal is far from attaining its natural strength, health, and appetite: it undergoes a kind of infantine imbecillity; and, unlike most other insects, which the instant they become flies have gained their full maturity, the Dorr continues for some time feeble and sickly; its colour is much brighter than in the perfect animal; all its parts are soft; and its voracious nature seems for a while entirely suspended. As the animal is very often found in this state, it is erroneously supposed by those who are unacquainted with its genuine history, that the old ones of the former season have interred themselves for the winter, in order to revisit the sun the ensuing summer: but the fact is, the old ones never survive the season after they have become denizens of the sky; but, like all the other winged tribes of insects, die through cold.

The Dorr, after having lived near four years in its imperfect state, generally bursts from its subterraneous abode during some mild evening about the latter end of May; when an attentive observer may see numbers of these insects issuing up before him in his pathway in a very curious and attracting manner, even perforating the hardest parts of the earth by their egression: and, when the season is very favourable, they are seen in myriads, buz-

zing along, and striking against every object which intercepts their flight. The mid-day sun, however, seems too powerful for their constitutions; for they then lurk under the leaves and branches of shady trees: the willow seems to be their most favourite food; and on it they settle in clusters, and seldom quit it till they have consumed all the verdure. In the evenings of those seasons which are most favourable to their propagation, they appear in incredible numbers; their continuance, however, is but short, as they have many formidable enemies to encounter, and the first severe weather totally annihilates them.

They begin to copulate soon after they are emancipated from their prisons. The Dorrs, in their winged state, seem much less noxious to vegetation than when in their imperfect one. In the latter, however, they sometimes destroy not only the verdure, but the very roots of plants; and, if the feathered tribe did not unanimously conspire to devour them, they would be fatal to agriculture, and probably occasion frequent famines.

BEETLE, WATER. These Beetles generally have feelers like bristles; and feet adapted for swimming, being a little bearded like an ear of corn; these feet are six in number, the hinder of which are longest and broadest. They seldom fly abroad in the day time; but, like the Beetle tribe in general, shew a predilection for the night.

BEETLE, GREAT WATER. This insect is an inch and a half long; it is entirely of a deep and somewhat glossy black; the eyes are pretty large; the feelers are short; the cases of the wings are smooth on the surface, under which the wings have a tincture of a silver colour; and the body gradually decreases in size, till it terminates in a point. It is very common in ponds and ditches; and riots on the more feeble aquatic insects.

BEETLE, BLACK WATER, with the cases of the wings yellow on the edges. This species is about the same size as the Great Water Beetle, but the head is small in proportion to the body. The eyes are large; the legs are strong and robust; the edges of the cases of the wings are very prominent, especially about the middle, where they are of a yellow colour; but every other part is black. It is common in rivers and brooks.

BEETLE, GOGGLE-EYED WATER. This species is somewhat less than that last described; the head, however, is very large, and the eyes are remarkably prominent; the cases of the wings are marked with ten streaks, which are discontinued before they run the whole length; and the colour is wholly of a blackish brown.

BEETLE, GREY WATER. This insect is about the size of the blue flesh-fly; its breast is yellow in the middle, but black at the top and bottom; the cases of the wings are of a greyish colour, marked with a great number of yellowish shining specks, which at the edges become entirely yellow; there is also a yellow spot, in the shape of a heart, with black edges, on the top; and the point of the breast is obtuse, though slightly forked.

Linnaeus mentions a Water Beetle with perfoliated feelers; that with dilated sides; the common Water Beetle; and the Water-flea. These last are remarkable for skipping up and down on the surface of the water, as if they were at play; but, when the water is troubled, they sink to the bottom, or conceal themselves in the holes of the banks.

The other species are, the Water Beetle with a yellow

yellow breast; that with brown wings and a black belly; the Water Beetle with a round body, marked with ten streaks on the cases of the wings; the oval-bodied Water Beetle, with the cases of the wings and the breast black, and the head and legs reddish; and the brown oval Water Beetle, with reddish legs, head and breast.

BEETLE, STINKING. This species obtains the name of *tenebrio* among naturalists, from the circumstance of it's hating the light. It is a pretty large insect, entirely of a coal-black colour; the legs and thighs are slender; and the feelers are composed of pretty long joints, except the last, which is roundish: the breast has a rim on it, and is marked with small spots. The animal walks very slowly; and, during the day-time, conceals itself in the deep holes of dunghills. It has a nauseous filthy smell, which even affects those places where it is found; and it seems to be of a very solitary nature, as two of them are seldom discovered together.

BEETLE, TENEBRIO BLACK, with the cases of the wings rounded behind. This is a pretty large animal; the back is slightly prominent; the head is small; the legs are long; it is entirely of a fine deep-black colour, with a purplish cast; and is frequently found in the hot-beds of gardens.

BEETLE, TENEBRIO BLACK, with prominent jaws. This insect is very little larger than the common fly; it's colour is a deep dull black; it's legs are long; and it's feelers are pretty long and slender. It is commonly found on the half-rotten branches of trees.

Linnæus informs us, that this insect is furnished with small filiform feelers; and that the superior part of the body, which appears like cases of wings, is closely connected, the animal being entirely destitute of wings.

BEETLE, OIL. This insect is called the *proscarabæus* by Linnæus and Mousset. It is distinguished by having a soft body, of a dusky blue colour, with a shining blackish cast: it has two wings, or rather the rudiments of wings, on the shoulders, which this insect uses much after the manner of the ostrich, to assist it in running, and not in flying. The circles which surround the backs and bellies of the young Oil Beetles are greenish; but those of the more adult are blue; and, on the slightest motion or touch, it emits a kind of oil, not very dissimilar to liquid honey.

Mousset informs us, that this insect makes it's appearance only in May, or the beginning of June. Linnæus affirms, that it's feelers are like small threads; that it has no wings; but that it is furnished with a sort of cases, about half the length of those members in others of the Beetle kind.

BEETLE, MILL. This insect has feelers like bristles, two horns on the tail, membranous cases to the wings, and a roundish and somewhat compressed margined breast. It is of a deep iron-colour, approaching to black; the shield, which lies over the breast, is plain and oval; and the cases of the wings are also of an oval shape, but somewhat shorter than the body, and a little transparent: there are three streaks upon each, the middlemost of which is raised, and the more inward hollow and compressed. On the tail there are two prickly feelers; and the legs are also prickly. The female has only the rudiments of wings, and their cases. This insect, which never appears during the day-time, is very common in mills, and the houses of bakers. Linnæus calls it the *blatto*.

To these species of Beetles already described, several others might be added which are referred to this genus; but they differ considerably in many particulars of their conformation, and totally in their names.

BEEVE, SIBERIAN. This animal, which is of the cow-kind, is found in the country from which it receives it's name; and particularly in the vicinity of the Lake Baykal. The male has neither horns nor mane, but only rough curled hair on the top of it's head; and it's tail is like that of a horse: it's whole body, except it's legs and face, is covered with long straight hair; so that it bears but a very distant resemblance to the common species of neat cattle.

BEEVE HOG. This animal, which seems to be of a middle nature between a Beeve and a Hog, is of the height of an ass, but broader and thicker; it is of a whitish dun or cream-colour; the hair on the body is extremely thin, and rather resembles that of a hog than a cow: from the neck to the tail there is a row of bristles down the spine of the back, but not so strong as those of a hog; the tail is terminated with stiff bristles, and appears very much like that of an ass; the head is very long; the snout, though approaching to that of the cow-kind, has a little similitude to the snout of the hog; on the head there are two black flattish horns, bending inwards like a bow, and lying pretty close to the neck; it has no udder like a cow; but between the hind-legs there are two small teats which grow close to the body.

This very singular animal has been hitherto little noticed by naturalists. One of them was publicly exhibited in England a few years ago; and though it's owners pretended that it came from the East Indies, and that it's proper name was the *bonafus*, it was very unlike that animal.

BEEVES. A general name for oxen.

BEHEMOTH. A vast animal mentioned in the sacred writings, about which interpreters are extremely divided.

BEISSKER. A name applied by Gesner, and some other naturalists, to the fish commonly called *mustela fossilis*, a species of the *cobitis*, distinguished by Ardeti by the name of the blueish *cobitis* with fine black longitudinal lines on each side. Schonefeldt calls it the *pœcilia*; and Johnson, the *piscis fossilis*.

BELAVE. A name given by some of the ancient naturalists to the *acus Oppiani*; in English, the horn or gar-fish.

BELENNUS. A small anguilliform sea-fish, called by some naturalists *blennis*. It's figure approaches nearly to that of the English bull-head, or miller's-thumb; and is a very scarce species.

BELL-ANIMAL. A name given by writers on microscopical discoveries to a minute animal found at the roots of the common duck-weed. It's body bears some resemblance to a bell; and it is furnished with a very long and slender tail, by which it affixes itself to the roots of these little plants. These animals are usually found in clusters, or bunches; those of the same bunch have always a similar motion, very frequently contracting themselves, and afterwards expanding to the full length of their tails.

BELL-POLYPE. A particular species of polypus, the extremities of whose ramifications resemble bells.

BELLICULI; or, BELLIRICI MARINI. A species of sea-shells of an umbilical figure; some-

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times of a white colour variegated with yellow; and, at others, of a yellow streaked with black lines, after the manner of snails.

BELLOWS-FISH. This animal, to which some naturalists give the name of the trumpet-fish, is about four inches long, and an inch and a half broad; it is covered with rough scales, and has a long snout almost equal to a third part of its whole body; the eyes are large, and their irides white; and on the back rises a very strong spine of a great length, to which there is a correspondent furrow on the back part.

BELLUÆ. The sixth order of the mammalia; the characters of which are, that their fore-teeth are obtusely truncated, their feet hoofed, their walk heavy, and their food vegetables. The genera of the horse, hippopotamus, hog, and rhinoceros, belong to this order.

BELUGÆ. A large fish of the sturgeon kind, called by Artedi *accipenser tuberculis carens*. This fish greatly resembles the sturgeon in shape, except that its snout is shorter and thicker; and from its roe or spawn that delicious composition called caviar is made. In the Wolga, this fish is very common, as well as very large; particularly near the city of Astracan, where some Belugæ have been caught measuring thirty-six feet in length and eighteen in circumference, and have yielded two hundred weight of caviar. It is also found in the Don and other rivers; and likewise in the Baltic and Caspian seas.

This fish is farther remarkable for producing a calculus, or stone, called the Beluga stone, which is found in both sexes, but most commonly in the male: however, it is far from being common; for in a thousand fishes there is not sometimes found a single stone. In what part of the fish this stone is situated, is uncertain; but it is very evident that it is no natural part of the animal, but only a morbid concretion, like the bezoar stone, in the animal which produces them, or the calculus in human bladders. This stone is of various shapes and sizes, which is probably owing to its situation, as well as to other external causes; but it is usually either globular or oval: it is of a yellowish white colour; of a smooth and naturally-polished surface; generally from the size of a pigeon's egg to that of a goose; usually compact, ponderous, and solid; not friable, but requiring considerable strength to break it; and also easily yields to the saw, though this instrument defaces its internal texture, which is naturally very elegant and regular. The Beluga stone consists of several concentric coats, firmly adhering to each other, and inclosing a nucleus, which generally appears to be some heterogeneous substance. Being composed of regular and even stræ, running from the centre to the circumference, and representing, both in colour and form, the flakes of the *terra foliata tartari*, or the striated spiculæ of antimony; it is, on these accounts, very different from all other stones of the kind.

If the Beluga stone be scraped to a powder, and sprinkled on hot iron, it emits a faint urinous smell, and calcines into a light, insipid, greyish earth. The natives on the banks of the Wolga esteem it very highly for its many salutary qualities, particularly that of promoting delivery; and by them it is constantly prescribed in cases of the stone and disorders of the urinary parts.

BELULA BOS. A name given by Paulus Jovius to that species of the ray-fish called by the ancient Greek and Roman writers *bos marinus*;

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and, by the moderns, *raia oxyrynchus*; and is distinguished by Artedi under the name of the variegated ray with ten prickly tubercles on the middle of the back.

BELSEBUL. A species of the simia, with a bearded black tail.

BEMETRE. A name given by the Brazilian Portuguese to a greenish black-bird of the starling kind, which is very common in that country, and called by the natives *pitangua-guacu*.

BENLOIA. A name by which the Swedes distinguish that species of the cyprinus which we call the bleak; and is the *alburnus* of naturalists.

BENNET-FISH. This fish is a native of the African seas, and is frequently caught near the Cape of Good Hope: it is nearly as long and thick as a man's arm; and weighs from six to eight pounds. It makes a very beautiful appearance, having large scales of a deep purple colour, streaked with gold; the eyes are red; the mouth is small, and without teeth; near the gills there are two fins of a gold-colour; the tail is red, and looks like a pair of scissors when opened; the scales are transparent, the skin, when they are removed, appearing of a fine shining purple colour; the flesh is red, and divided into flakes by a sort of membrane; and, though somewhat dry and hard, it is nevertheless well-tasted, and easily digested.

BERFISCH. A German name for the common perca, or perch.

BERGANDER. An appellation given by some naturalists to the shell-drake, or burrough-duck, a very beautiful species of that fowl common on the coasts of Lancashire; but its flesh is by no means palatable.

BERLUCCIO. A small bird of the hortulanus kind, strongly resembling the yellow-hammer, but somewhat smaller and longer-bodied.

BEROE. A marine animal found on the British coasts, of a gelatinous, transparent nature, and of an oval or spherical form, from half an inch to an inch in diameter, divided like a melon into longitudinal ribs, each furnished with rows of minute fins, by means of which this creature, like the animalia infusoria, can swim in all directions with great facility.

Linnaeus has joined the Beroe to the *volvox*, one of the animalia infusoria.

BERUS. A species of the coluber.

BEZOAR GOAT. An animal found in Asia Minor, and several other countries; to which Buffon gives the appellation of the pafan, and makes it a species of garelle. It has smooth black horns, sharply ridged on their upper parts, and hollowed on their exterior sides; these horns, which are close at their bases, are about a foot distant in their widest parts, and their length is about three feet: on the chin there is a large dusky beard, mixed with chestnut; the fore-part of the head is black, the sides being mixed with brown; and the rest of the animal is grey, or grey mixed with ferruginous. From the neck to the tail, along the ridge of the back, there is a black list; and the tail is likewise black.

Though this animal, in form and agility, resembles the stag, Monardus compares it to the he-goat; and asserts that its feet are the same with those of the goat.

The Bezoar Goat is one of those animals which yields that once valued alexipharmic the Bezoar-stone, a concretion formed of many coats encrusting a nucleus of heterogeneous matter found in the

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the stomach and intestines. The word Bezoar is supposed to derive its name either from the *pasan*, or *pasar*, the animal which produces it; or from a word in the Arabic language signifying an Antidote or Counter-poison.

The Bezoar-stone is generally from the size of an acorn to that of a pigeon's egg; and the larger the stone, the more valuable it is esteemed, its price increasing like that of a diamond. A stone weighing four ounces was formerly sold in Europe for two hundred pounds; but, at present, these stones being of little estimation, the price has of course greatly fallen.

The Bezoar is of various colours; sometimes of a blood-colour; sometimes of a pale yellow; and, at other times, of all the shades between the above two colours: it is generally smooth and glossy; and has a fragrant smell, like that of ambergris, probably arising from the aromatic vegetables on which the animal feeds which produces it. It has been prescribed in vertiges, epilepsies, palpitations, the colic, the jaundice, and, in short, in almost every disorder incident to humanity: in all of which, perhaps, it is alike efficacious, acting only as an absorbent, and possessing virtues equal to those of common chalk, or crabs-claws. Judicious physicians have therefore discarded it; and the use of this once-celebrated medicine is now chiefly confined to those countries where the knowledge of nature hath as yet made but little progress.

When this medicine was in its highest reputation, many arts were practised to adulterate it, and many countries endeavoured to discover a Bezoar of their own; thus we had occidental as well as oriental Bezoar, cow Bezoar, hog Bezoar, and monkey Bezoar: in short, there is scarcely an animal of the frugivorous kind which does not produce some of these concretions; and probably those of one creature are equally as efficacious as those of another.

BEZOLA. A truttaceous fish of the albula kind, called by Gefner the albula cærulea. It resembles the herring in shape; and is of a dusky blueish colour, not differing very essentially from the lavaretus.

BIB. This fish, to which Linnæus gives the name of the *gadus luscus*, grows to the length of a foot. The body is deep; the sides are compressed; and the scales, so far from adhering to the skin, as is asserted by some naturalists, are extremely deciduous: the eyes are covered with a loose membrane, which the Bib can inflate at pleasure, like a bladder; the mouth is small; and beneath the chin there is a beard about an inch long. The first dorsal fin consists of twelve rays; the second, of twenty-three; and the third, of twenty: the pectoral fins have about sixteen rays; the ventral, six or seven, of which the first ray is long and fetaceous; the first anal fin has twenty-seven, and the last twenty-one rays. The back is of a light olive colour; the sides are finely tinged with gold; the belly is white; the tail is black; and the anal fins are dusky, edged with lively white.

BIBIO. The wine-fly, a very small insect found frequently among empty wine-casks. It is produced from a small oblong red worm, very common in the sediments of wine.

BICAUDA. A fish of the xiphias or sword-fish kind, about five feet long, and a foot and a half broad at the breast, tapering gradually towards the tail. It is covered with a thick rough skin; and has several short bony prickles on its back and

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sides, which are of a brown colour: the belly is white; and the fins are all of a brownish grey, the back one being adorned with several beautiful black spots.

The name of this fish is derived from *Bis*, Double; and *Caudia*, a Tail: and is esteemed very palatable food.

BIDET. A nag, or little horse.

BIGGEL. A quadruped nearly about the colour and magnitude of a rein-deer; and, according to Mandelsloe, is a native of the East Indies. Its head is like that of a horse; its mane is like an ass's; it has black cloven-feet; and is furnished with two horns.

BIL. A name given by some naturalists to a particular species of cod-fish.

BILLARD. An English name for the young of the coal-fish, or rowling pollack, up to a certain size; as the cod, to a certain magnitude, is called a codling.

BIOTA. A name by which Dr. Hill expresses the polype. This creature is of a cylindric, but variable figure; and the tentacula are arranged in a single series round the aperture of the mouth, at the extremity of the body.

Linnæus gives this animal the name of *hydra*, probably from the reproduction, or repullulation, of its parts when cut off; and the name *Biota* seems likewise applicable on the same account. There are several species of the *Biota*.

BIRD. The characters of this class of animals are, that their bodies are covered with feathers; that each of them is furnished with two legs and two wings, and a hard bony bill; and that the females are oviparous.

This beautiful race of animals seems formed to embellish our forests, to amuse us in our walks, and to exclude solitude from our most shady retirements. From them man has nothing to fear; their pleasures, their desires, and even their animosities, serve only to enliven the general picture of nature, and to cheer the pensive and contemplative mind.

Every part of nature is furnished with its proper inhabitants: the woods, the waters, and the depths of the earth, have their respective tenants; while the passive air, and those tracts of seeming space too elevated for man to ascend, are traversed by multitudes of the most beautiful feathered beings. Though all ranks and orders of animals seem adapted for their destined situations, none are more apparently so than birds; they share the vegetable spoils of the earth in common with the quadrupeds; to compensate their want of strength, they are supplied with swiftness; and, in order to avoid those enemies which Providence has not fitted them to oppose, they are endowed with the faculty of ascending into the air. Birds, indeed, seem entirely formed for a life of escape, every part of their anatomy being calculated for swiftness; and, as they are designed to soar on high, all their parts are proportionably light.

Though, in the scale of nature, it must be admitted that Birds are inferior to quadrupeds, as being less imitative of human endowments; they certainly surpass fishes and insects, not only with respect to the structure of their bodies, but in their superior sagacity.

Of man, the most perfect animal, there are but a very few species, and the discriminations between them are not strongly marked; of quadrupeds, the kinds are more numerous; Birds are more various still;

skill; and fishes yet more; but insects afford so very great a variety, that they elude the researches of the most inquisitive naturalists. Quadrupeds are observed to bear some distant resemblance, in their internal structure, to man; but that of Birds is entirely dissimilar: formed chiefly to inhabit the empty regions of air, all their parts are suited to that purpose; the shape of their bodies, which is sharp before, in order to facilitate their passage through the yielding element, rises by a gradual swell, and falls off in expansive tails, which serve to keep them buoyant while their fore-parts are cleaving the air. They have been, for this reason, not unaptly compared to a vessel making its way through the water; the trunk of the body of the animal answering to the hold, the head to the prow, the tail to the rudder, and the wings to the oars.

The external formation of Birds affords matter for our admiration: particularly the position of their feathers, which generally tend backwards; and thus, by lying one way, and over each other in an exact and regular order, answer the threefold purpose of warmth, speed, and security. Those parts of the feathers next their bodies are furnished with a warm and soft down; while the external ones are arrayed with double beards in two ranks, longer at one end than at the other: these beards consist of rows of little thin laminae, disposed and inserted in lines, as perfect and regular as if their extremities had been cut off by the most curious artist. But, lest these feathers should receive any injury from their violent attrition against the air, or imbibe the moisture of the atmosphere, Birds are furnished with glands behind, containing proper quantities of oil, which they occasionally press out with their bills, and spread over all those feathers which require smoothing: these glands, which are situated on their rumps, are furnished with apertures, round which grow small tufts of feathers somewhat like painters pencils. Such poultry, however, as live principally under cover, and seldom expand their wings in flight, have a smaller quantity of this fluid than those which frequent the open air; the feathers of a hen, for instance, are pervious to every shower; but those of a swan, a goose, a duck, or a moor-hen, as well as all such Birds as nature has directed to an aquatic life, are dressed with oil from the very first day of their leaving their shells; and thus: their stocks of fluid are proportioned to the necessary degrees of consumption. Their flesh, indeed, contracts a flavour from it, which in some is so very rancid as to be totally unfit for food; but if their flesh is injured by it, their feathers are improved, and made more valuable for all the domestic purposes to which they are usually applied.

The feathers with which Birds are clothed are equally worthy of admiration: the shaft of each is formed proportionably strong, but hollow below, in order to contribute to its lightness; and is filled above with pith, to afford nourishment to the beard springing from the shaft of the feather on either side. These feathers, with respect to their lengths and strength, are generally so placed, as that the largest and strongest may have the greatest share of duty in flight. Nor is the vane, or beard, of the feather, formed with less wisdom or art: it does not consist of one continued membrane, because, if that were broken, it could not easily be repaired; but is composed of many layers, somewhat resembling feathers, and lying against each other in close conjunction. Towards the shaft of the feather, these

layers are broad, and of a semicircular form, for the purpose of adding to their strength, as well as to keep them closer to each other when in action. They, however, grow slender and taper toward the exterior edge of the vane, for the purpose of contributing to their lightness. On their inferior sides, they are thin and smooth; but their upper external edges are parted into two hairy margins, having a different sort of hair on each side, broad at the bottom, and slender and bearded above. By this mechanism, the hooked beards of one layer always lie near the straight beards of the succeeding one, and by that means lock and hold each other.

The wings of those Birds which fly are usually placed at those parts of their bodies which serve to poise and support them in the air: they answer to the fore-legs in quadrupeds; and at their extremities they have a finger like an appendix, usually called the bastard-wing. This auxiliary instrument of flight is likewise furnished with quills, which differ from the common feathers only in the largeness of their size, and their springing from the deeper part of the skin, their shafts lying almost close to the bone: the beards of these quills are broad on one side, but more narrow on the other; and both contribute to the progressive motion of the Birds, and the closeness of their wings.

All Birds are furnished with two very strong pectoral muscles on each side of their breast-bones. In quadrupeds, as well as in men, the pectoral muscles are trifling in comparison with those of Birds. In the former, the muscles of the thighs, and the hinder-parts of the body, are by far the strongest: but, in Birds, it is far otherwise; the pectoral muscles which give motion to their wings, or arms, are amazingly strong; while those of their thighs are weak and slender. By means of these, a Bird can move its wings with a degree of strength which is almost incredible: the flap of a swan's wing would break the leg of a man; and a similar blow from an eagle has been known to occasion instant death. Such, consequently, is the force of the wing, and such its lightness, as to be inimitable by human art: and as no machines which human skill can contrive are capable of imparting so great power to so light an apparatus, the art of flying with artificial wings, so often and so fruitlessly sought after, appears to be totally unattainable.

In all Birds, nocturnal ones excepted, their heads, in proportion to their bodies, are smaller than those of quadrupeds, that they may with greater facility divide the air in the act of flying, as well as prepare a more easy passage for their bodies. Their eyes also are more flat and depressed than those of quadrupeds; and their pupils are encompassed by small plates of bone under the exterior coats of the organs of sight, in order to strengthen and defend them from injuries. Birds have also a kind of skins, called the nictitating membranes, with which they can cover their eyes at pleasure, as with a veil, though their eye-lids continue open: these membranes originate from the greater or more obtuse angles of their eyes; and probably serve to wipe, cleanse, and moisten their surfaces.

The eyes of Birds are admirably adapted to vision, by a particular expansion of their optic nerves, which renders the impression of external objects more vivid and distinct. From this peculiar conformation, it appears that the faculty of sight in Birds is infinitely superior to that of other animals; and, indeed, is indispensably necessary to their support and security. Were the eye less perfect, the

Bird,

Bird, from the rapidity of it's motion, would probably strike against almost every object in it's way; as well as be totally incapable of discerning it's proper food when soaring in it's own element. Thus the kite, though at an astonishing height from it's prey, darts on it with the most unerring aim; and the hawk descries the lark at a distance far beyond the reach of the human eye.

All Birds are destitute of external ears, being only furnished with holes for the purpose of conveying sound to their auditory ducts. The horned owl, indeed, and a few other Birds, seem to have external ears; but this appearance is occasioned by the projection of some feathers beyond the rest on each side of their heads. It is probable, however, that those feathers which encompass the ear-holes of Birds supply the defects of their exterior ears, so far as they are instrumental in transmitting various sounds to their internal sensories; and the extreme delicacy and sensibility of their organs are easily proved by the facility with which some Birds learn musical notes, as well as by the great exactness of their pronunciation of words.

The olfactory nerves in the generality of Birds appear equally curious: some of the feathered tribes scent their prey at a vast distance; and others, by the sense of smelling, avoid their insidious pursuers. In decoys for catching ducks, those who attend on that business always keep pieces of turf burning near their mouths, on which they constantly breathe, lest the fowls should smell them, and consequently avoid their lures. The universality of this practice puts the propriety of it beyond a doubt; and proves the extreme delicacy in the olfactory sensation with which this species at least of the winged creation is endowed.

The legs and feet of Birds are lightly constructed, for their easier transportation through the air. The toes of those which are calculated for swimming in the water are webbed; but, in other Birds, they are disjointed, the better to enable them to retain objects, or cling to the branches of trees with security. Such Birds as are furnished with long legs have also long necks, as they would otherwise be incapable of picking up their food: swans and geese, however, whose necks are extremely long, have very short legs; and are for that reason better adapted for swimming than walking. Thus every external part appears fitted to the life and situation of the animal. Nor are the inward parts, though not immediately appropriated to flight, less necessary to safety: the bones of every part of the body are extremely thin and light, and all the muscles very slight and feeble, except those which afford motion to the wings; while the tail serves to counterbalance the head and neck, to guide the animal's flight like a rudder, and to assist it in it's ascent and descent.

If we minutely examine the internal parts of Birds, we shall find the same wonderful conformation fitting them for living in air, and increasing the surface by diminishing the solidity. Their lungs adhere to the sides of their ribs and backs; but the extremities of the branches of their wind-pipes open into them; while these have a communication with the cavities of their bellies, and convey the air drawn in by breathing into certain receptacles resembling bladders, extending the whole length of their bodies. Nor are these openings obscure, and difficult to be discerned; for a probe thrust into the lungs of a fowl will easily find a passage into the belly; and air

blown into the wind-pipe will be seen to distend the animal's body. In quadrupeds, this passage is intercepted by the midriff; but, in fowls, the communication is obvious, and consequently they with much greater facility take long and large inspiration. Sometimes also the wind-pipe makes many convolutions within the body of the Bird, and it is then called the labyrinth; but of what use these turnings or windings are to particular Birds, neither naturalists nor anatomists have hitherto been able to develop. This difference of the wind-pipe is often found in Birds that, to all appearance at least, are of the same species: thus, in the tame swan, the wind-pipe makes but a straight passage into the lungs; while, in the wild swan, it pierces through the breast-bone, and has several turnings before it comes out again and proceeds to enter the lungs. These convolutions, however, are not instrumental in forming the voice of the Bird; since those fowls which are destitute of them are nevertheless vocal. We cannot therefore ascertain from whence some Birds derive the loud and various modulations in their warblings: but we may venture to assert, that fowls, in proportion to their bulk, have louder voices than animals of any other kind; for the screaming of a peacock is as loud as the bellowing of an ox.

Though all Birds, properly speaking, have but one stomach, it is, however, very unlike in different kinds. In all the rapacious tribes the stomach is peculiarly formed: the œsophagus, or gullet, in them, is found to be replete with glandulous bodies, which serve to dilate and macerate their food as it passes into their stomachs, which are always very large in proportion to the sizes of the Birds, and are generally enveloped in fat, in order to increase their warmth, and assist their digestive powers. The intestines of frugivorous Birds are differently formed from those of the rapacious kinds: the gullet, in them, dilates just above the breast-bone, and forms itself into a pouch or bag, called the crop, which is replete with salivary glands, serving to soften and moisten the food which it contains; and these glands are furnished with longitudinal openings, which emit a whitish and viscous substance. The dry food of the Birds, after being macerated for a convenient time, passes into their bellies; where, instead of a soft, moist fluid, as in the rapacious kinds, it is macerated between two pairs of muscles, commonly called the gizzard, internally covered with stony ridgy coats, and almost cartilaginous: these coats, rubbing against each other, are capable of bruising and attenuating the hardest substances, their action being similar to that of the grinding-teeth in man and other animals. Thus the organs of digestion in Birds are in a manner reversed. Beasts grind their food with their teeth; after which it passes into their stomachs, where it is softened and digested: on the contrary, Birds first macerate and soften it in their crops, and then it is ground or comminuted in their stomachs or gizzards. Birds are also careful to pick up sand, gravel, and other hard substances; not to grind their food, as has been supposed, but to prevent the too violent action of the coats of the stomach against each other.

Many species of Birds are provided with two appendices, or blind guts, which in quadrupeds are always found single. Among such Birds as are thus supplied, are all carnivorous fowls: and all Birds of the sparrow kind have very small and short ones; while water-fowl, and Birds of the

poultry kind, have the longest of all. There is still another appendage, resembling a small worm, observable in the intestines of Birds; but which is nothing more than the remainder of that passage by which the yolk was conveyed into the guts of the young chicken, while yet in the egg, and under incubation. The outlet of that duct which conveys the bile into the intestines, is in most Birds a great way distant from the stomach; which circumstance may probably arise from the danger there would be of the bile's regurgitating into the stomach during their various rapid motions.

Though Birds are destitute of urinary bladders, they have large kidneys and ureters by which this secretion is made, and carried away by one common canal. 'Birds,' says a celebrated anatomist, 'as well as serpents, which have spongy lungs, void but little water, because they drink but little: they therefore have no need of bladders; but their urine distils down into the common canals designed for the reception of the other excrements of their bodies.' From this simple conformation of these animals, it should seem that they were obnoxious to few diseases; and, in fact, it is so: there is one, however, to which they are subject, and from which quadrupeds are in a great measure exempted, namely, their molting; for all Birds annually change their old coverings for new ones. During the molting season, they always appear disordered: those most remarkable for their fierceness, at that time lose all their spirit; and such as are of weakly constitutions often expire under this natural distemper. No feeding can then maintain their wonted strength: they cease to breed; and that nourishment which at other times would go to the production of their young, is then wholly absorbed by the growing plumage. Those persons, however, who have the management of singing Birds, adopt the following method of accelerating this molting-time: they inclose the Birds in dark cages, where they keep them excessively warm, and thereby throw the poor little animals into an artificial fever; this practice hastens the molt; their old feathers experience a premature death, and new ones shoot forth more brilliant and beautiful than the former. This method is supposed to improve the singing of the Birds, as well as to increase their vivacity; but scarcely one Bird in three survives the dangerous experiment. Nature, unassisted by art, performs the operation of molting in the following manner: the quill or feather, when first protruded from the skin of the Bird, and arrived at it's full size, increases in hardness as it does in age, and receives a kind of periostrum, or skin, round the shaft, by which it seems attached to the animal. By degrees it's sides, or quill part, thickens, but it's whole diameter shrinks and decreases. Thus, by the thickening of it's sides, all nourishment from the body becomes more sparing; and, by the decrease of it's diameter, it becomes more loosely fixed in it's socket, till at length it drops out. In the mean time, the rudiments of an incipient quill are beginning below, and the skin forms itself into a little bag, which is fed from the body by a small vein and artery, and which every day increases in size till it is protruded. While the one end vegetates into the beard or vane of the feather, that part attached to the skin still remains soft, and receives a constant supply of nourishment, which is diffused through the body of the quill by that extremely light substance which we find in it's boss or hollow: this substance, which

as yet seems destitute of a name, supplies the growing quill with it's proper nourishment in the same manner as the umbilical artery does an infant in the womb. When, however, the quill is come to it's full growth, the vein and artery become less and less, till the little opening by which they communicate with the quill becomes wholly obliterated; and the quill, thus deprived of nourishment, continues in it's socket for some months, till at last it shrinks, and leaves room for a repetition of the same process of nature.

The molting season, with respect to the generality of Birds, begins about the end of summer, and lasts till the middle of autumn; and many of the animals struggle with this malady throughout the winter also. Nature, however, has kindly ordained that, at a time when the fewest provisions are to be found, the appetites of Birds should be the least craving. At the beginning of spring, when their food becomes plentiful, the strength and vigour of these animals return; and the bounty of Providence, together with the mildness of the season, incites them to mutual affection: their vital spirits also, which were in a great degree locked up during the winter, now begin to expand. Those warblings which had long been hushed, begin to gladden the fields; and every grove and every bush resounds with the melodious concert. But this delightful harmony of the grove, so much admired by man, is by no means intended solely for his amusement: it is usually the call of the male to the female; his efforts to soothe her during the times of incubation; or a controversy between two males for the affection of some common favourite.

At the approach of spring, Birds begin to pair, and to provide for the support of their future progeny; and the loudest notes, on such occasions, generally proceed from the tuneful throats of the males, while the females express their consent in short interrupted twitterings. The compacts then entered into between the two sexes, are, for the season at least, faithfully observed: but many Birds live together for years, with inviolable fidelity; and when one of them pays the debt of nature, the other does not long survive the loss. We must not, however, expect to find this steadfast attachment very prevalent among the poultry in our yards, where their freedom is abridged, and their manners are contaminated by slavery: rather let us look for it in the fields and the forests, where nature retains her unadulterated simplicity; where the number of males is generally equal to that of the females; and where every little animal seems no less pleased with it's progeny, than wedded to it's mate. Were it possible, indeed, to compare the sensations of irrational animals, the male of all wild Birds seems to share an equal pleasure with the female in their young brood; and all his soothing melodies seem only directed to that important period when they are both to become parents, and to nourish their common progeny: and, on the arrival of that season, they both seem transported with joy; every little action witnessing their pride, their importance, and their parental solicitude.

The business of fecundation being performed, the female begins to lay her eggs. Such of them only as have been impregnated by the male become prolific; while those which have been otherwise produced continue sterile, and soon become addled through incubation. Previous, however, to laying, a nest is prepared; the building of which is

is performed with no small degree of assiduity and apparent design. Some naturalists have asserted, that Birds of one kind always construct their nests in the same manner, and of the like materials; notwithstanding which, it is certain that they vary as the materials, places, or climates, differ. The red-breast, for instance, in some parts of England, builds its nest of oak-leaves; and, in other parts, with moss and hair. Some Birds, which in this island form very warm nests, are very indifferent about that circumstance in the tropical climates, where the natural heat of the weather promotes incubation. In general, however, every species of Birds has a peculiar kind of architecture, adapted either to the number of eggs, the climate, or the heat of the bodies of the respective animals. Where the eggs are numerous, it is then necessary that the nest should be warm, in order that the animal heat may be equally diffused to all. Thus, the wren, as well as all the other small Birds which have many eggs, require very warm nests: on the contrary, the plover, the eagle, and the crow, which have but few eggs, are not so solicitous in this respect, their bodies being sufficiently large to cover the small number on which they sit.

The difference of climate sometimes occasions vast alterations in the construction of the nests of Birds. Some water-fowl, which build very slovenly nests with us, in the more frigid regions of the north are very particular in their structure: for they there take every precaution to keep them warm; and some of them even strip the down from their own breasts, for the purpose of lining their nests with greater security. In general, however, all Birds, when hatching, resort to those climates and places where their food is found in the greatest plenty. Aquatic Birds, as well as the largest of the land kinds, select such situations as are most remote from man; their food, in general, being different from that which is cultivated by human labour. Some Birds, which regard the serpent as their deadliest foe, build their nests depending from small boughs, and form their entrances from below; thereby equally securing them from the serpent and the monkey tribes: but small Birds, which feed upon fruits and corn, make use of every precaution to conceal their nests from man; while the great Birds, remote from human society, employ every art to render theirs inaccessible to wild beasts or vermin.

While the female is hatching, nothing can exceed her patience; neither the calls of hunger, nor the near approach of danger, being capable of driving her from her nest. Though fat when she begins to sit, before the time of incubation is expired, she is usually reduced almost to skin and bone. Ravens and crows, while their females are sitting, take care to supply them with food: but this is not the practice of most of the smaller Birds; the males of which, during the whole time, sit upon some neighbouring tree, and soothe the females with their songs; frequently taking their places when they are weary, and continuing on the eggs till their return. Sometimes, indeed, the eggs acquire too great a degree of heat; and, in that case, the females remove from them, in order to allow them time to cool a little; but afterwards return with pleasure and perseverance to resume their task.

Such is the power of instinct in animals of this class, that they appear to be driven, as it were, from one appetite to another, and continue almost

passive under its influence. We cannot apply reason to such a passion, since the first dictates of that principle would be self-preservation. 'Take a brute,' says Mr. Addison, 'out of his instinct, and you will find him wholly deprived of understanding. With what caution,' continues he, 'does the hen provide herself a nest in places unfrequented, and free from noise and disturbance! When she has laid her eggs in such a manner that she cannot cover them, what care does she take in turning them frequently, that all parts may partake of the genial warmth! When she leaves them, in order to provide for her necessary sustenance, how punctually does she return before they have had time to cool, and become incapable of producing an animal! In the summer, you see her giving herself greater freedoms, and quitting her care for above two hours together; but in winter, when the rigour of the season would chill the principles of life, and destroy the young one, she grows more assiduous in her attendance, and stays away but half the time. When the birth approaches, with how much nicety and attention does she help the chick to break the prison! not to take notice of her covering it from the injuries of the weather, providing it with proper nourishment, and teaching it to help itself; nor to mention her forsaking the nest, if, after the usual time of reckoning, the young one does not make its appearance. A chymical operation could not be followed with greater art or diligence, than is seen in the hatching of a chick, though there are many Birds which shew an infinitely greater sagacity: yet, at the same time, the hen, which has all this seeming ingenuity, considered in other respects, is without the least glimmerings of thought or common sense: she mistakes a piece of chalk for an egg, and sits upon it in the same manner; she is insensible of any increase or diminution in the number of those she lays; she does not distinguish between her own and those of another species; and, when the birth appears, though of ever so different a kind, will cherish it for her own. A hen, followed by a brood of ducks, will stand affrighted at the edge of a pond, trembling for the fate of her young, which she sees venturing into so dangerous an element. As the different principles which actuate these different animals cannot be termed reason, so, when we call it instinct, we mean something of which we have no knowledge. It appears to me the immediate direction of Providence; and such an operation of the Supreme Being, as that which determines all the portions of matter to their proper centres.'

Indeed, the production of their young seems to be the great era of felicity in animals of this class. At that time, nothing can exceed their industry and spirit; the most timid becoming courageous in the defence of their young: while those of the rapacious kind are at that season uncommonly fierce and active; they hasten with their prey, yet throbbing with life, to their nests, and early initiate their young to scenes of slaughter and cruelty. Nor are those of a milder nature less busily employed: the little Birds then discontinue their singing, being engaged in the more important pursuits of common subsistence.

While the young continue in the nest, the old ones provide them with a proper supply of food; and, that no individual may be overlooked, each is served in its turn. If they perceive that man has been busy with their nest, or has handled their little ones, they abandon the place by night, and provide

provide their brood a more secure retreat. When the whole family are fully plumed, and capable of avoiding danger, they are led forth in fine weather, and taught the art of providing for their own subsistence, by being conducted to those places where their food is most likely to be found: they are also at the same time instructed in the method of picking it up, and carrying it away; and are then re-conducted to the nest, where they continue a day or two longer. At length, when they are fully qualified to shift for themselves, the old ones again take them abroad; and, after leading them to the accustomed places, leave them to shift for themselves; and all connection ceases.

Those Birds which are hatched earliest in the season are the strongest and most vigorous; while such as have been delayed till the middle of summer are more tender and feeble, and sometimes incapable of sustaining the rigours of the ensuing winter. The very Birds themselves seem to be so sensible of this difference, that they endeavour to breed early in the spring; but, if their endeavours are obstructed, by having their nests robbed, or by any other accident, they still persevere in their efforts for a progeny; and it sometimes happens that they are retarded by a variety of accidents even to the middle of winter. What number of eggs a Bird is capable of laying in one season, has never yet been ascertained; but it is certain that such as would have laid but two or three at the most, if their nests be robbed, or their eggs stolen, will lay above ten or twelve. A common hen, if properly fed, will lay upwards of a hundred from the beginning of spring to the latter end of autumn. In general, however, it is observed, that the smallest and weakest tribes are the most prolific; while the strong and the rapacious are abridged by sterility. Thus, such kinds as are easily destroyed, are as easily repaired; and Nature, where she denies the power of resistance, generally compensates the defect by bestowing extraordinary fertility.

Birds in general, though naturally timid, are seldom frightened away from their usual haunts: they are perfectly formed for a wandering life, and supplied with powers to satisfy all their appetites. But, though they are so well qualified for changing their retreats with ease and rapidity, most of them remain contented in those districts in which they have been bred, seldom exerting their powers in proportion to their endowments. The rook, if undisturbed, will never desert its native grove; the blackbird does not often relinquish its usual haunts; and the red-breast, though seemingly mild, claims a certain district, from whence it seldom moves, but drives from thence every intruder of its own species without pity or remorse.

Hunger, climate, and fear, are to Birds the chief incentives to migration; and from one or other of these powerful motives, those which are called Birds of passage annually forsake us for some time, and afterwards make their regular and expected returns. Though nothing, perhaps, has excited the curiosity of mankind more than these annual migrations, few subjects continue so much enveloped in uncertainty. The cause of their retreat from some of our European islands is generally supposed to originate either from a scarcity of food at certain seasons, the alterations of the climate, or the want of a secure asylum from the persecution of man during the time of incubation and fostering their young. Thus, in Sweden, at the approach of winter, the starling, no longer finding subsist-

ence in that kingdom; descends annually into Germany; and the hen-chaffinches of the same country are observed to fly through Holland in large flocks about the beginning of autumn, in order to pass their winters in a milder climate.

Some Birds are known to undertake journies, the length and fatigues of which would intimidate human perseverance. In spring, the quails forsake the burning heats of Africa for the milder sun-beams of Europe; and, after continuing with us during the summer, wing their way back to enjoy the temperate air of Egypt, as soon as it begins to be delightful. These peregrinations appear to be concerted some days previous to their departure: multitudes of them assemble in some open place; and, by a kind of chattering, seem to settle the method of procedure. Their plan of operations being determined on, they all take flight together; and often appear hovering in such prodigious numbers over the sea, that to mariners they appear like a cloud resting on the horizon. The boldest, strongest, and by far the greatest number, carry their plan into execution: but others of their company grow weary by the way; and, quite exhausted by the fatigues of their flight, drop into the sea, and sometimes even on the decks of ships.

Among the amazing number of water-fowl which frequent our coasts, it is curious to reflect how few are known to breed on them. It is certain, however, that they cannot quit this country merely for the want of food; though to obtain a more secure retreat may perhaps be their chief motive. This country is probably now too populous for Birds so shy and timid: when it was less cultivated, and contained extensive tracts of woods and marshes, many species of Birds which now migrate, remained with us throughout the year. The great heron and the crane, which have long forsaken this country, in former times bred familiarly in our marshes, seemed to animate our fens, and, like the generality of cloven-footed aquatic fowls, built their nests on the ground. They had then but little to dread: the surrounding marshes protected them from all carnivorous quadrupeds, and their own strength from Birds of prey; but, in proportion as agriculture increased, they were more and more disturbed by the intrusions of man; and were at length obliged to seek other retreats, where they might live more remote from dangers and alarms.

Though the tribes of the duck kind are very numerous, we know of no more than five which breed in this country; namely, the tame swan, the tame goose, the sheldrake, the eider-duck, and the wild duck: the rest unite with that amazing quantity of wild fowl which inhabit the dreary lakes and deserts of Lapland, where they perform, in undisturbed security, the duties of incubation and nutrition. There are, indeed, but few of this kind which cannot be traced to the northern deserts; and to countries abounding with lakes, rivers, swamps, and mountains covered with thick and gloomy forests, which afford the most perfect safety to these naturally timid animals: from the thickness and extent of the woods in those regions, the ground continues moist and penetrable during the summer season; and the woodcock, snipe, and other Birds with slender bills, can feed with convenience and ease; while those which are web-footed find plenty of food from the numbers of insects which swarm there in incredible numbers. It is not therefore astonishing that amazing numbers of fowls should descend

scend from these regions at the approach of winter; numbers to which the army of Xerxes was but comparatively small; and which Linnæus has observed, for eight whole days and nights successively, to cover the surface of the River Calix.

These fowls generally migrate from the northern countries in the month of September, and disperse themselves over all the southern parts of Europe. To observe the order of their flight, is indeed amusing: sometimes they range themselves in a long line; and, at others, they march angularly, forming two lines which unite in the centre. The leader at the point seems to cleave the air, as if to facilitate the passage of those which are to follow; and, when weary of this laborious station, retreats into one of the wings of the file, and is succeeded by another pilot. About the beginning of October they make their first appearance with us, circulating round our shores; and, when compelled by severe frost, repairing to our lakes and rivers. Some, indeed, of the web-footed fowls, of hardier constitutions than others, endure the rigours of the northern climates during the whole winter; but, when this season is uncommonly severe, they are obliged to betake themselves to more southern skies; and at such periods only we are visited by the diver, the wild swan, and the swallow-tailed sheldrake.

That irrational animals should be able to perform such long journies, and how they should know when and whither to direct their courses, has often afforded matter of contemplation to the curious: but the same instinct which governs all their other actions, certainly operates here also. Indeed, they rather follow the weather than the country; and, when they perceive the variations of the air in their favour, they proceed in their journey till they discover land to rest on. It can hardly be supposed that they retain any remembrance of that country in which they had spent a former winter: nor is it probable that they can discern, from their height in the air, those regions to which they travel; since, though they should ascend even for miles, the convexity of the globe must interrupt their view.

There is, however, a circumstance attending the migration of swallows, which envelopes this subject in great obscurity. At the approach of winter in Europe, it is universally allowed that they are seen in amazing numbers migrating into other climes; and that their return into this country is about the beginning of summer: but it is equally true, that many of them continue here during the winter in a state of torpitude, making old walls, or the hollows of trees, the places of their retreat; and even sinking in clusters to the bottoms of the deepest lakes, where they repose in perfect security.

It seems difficult, however, to account for the various methods which these animals make use of for eluding the severities of winter. It has been supposed by some, that their blood loses its motion through the cold: but if Buffon, who is said to have placed many of this tribe in an ice-house, found that the same cold, by which their blood was congealed, was also fatal to their existence; it is doubtful whether there may not be a species of them, though apparently like the rest, formed internally so as to be fitted for a state of insensibility during the winter in this country. Some naturalists, indeed, have suggested, that the swallows which remain thus torpid may be only such as are either too weak, or were hatched too late, to join the ge-

neral convoy: yet on these last Buffon tried his experiment, and they all died under the operation.

But though some Birds, by emigrating, make their habitations in different parts of the earth, almost every climate has fowls peculiar to itself. Those of the temperate zone are not very remarkable for the beauty of their plumage; but the smaller kinds fully compensate this defect by the melody of their voices. The Birds of the torrid zone are very bright and vivid in their colours, but they in general have either harsh and disagreeable voices, or are totally silent: the frigid zone, on the contrary, where the adjacent seas abound with fish, is stocked with Birds of the aquatic kind, in much greater plenty than in Europe; and these are generally either clothed with warm coats of feathers, or have large quantities of fat lying beneath their skins, which serve to defend them from the rigours of the climate. In all countries, however, Birds are longer lived than quadrupeds or insects of the same climates. Even the life of man is short when compared with the lives of some Birds: it is said that swans have sometimes lived three hundred years, and that geese have been often known to exceed fourscore; while linnets, and other small Birds, seldom survive fourteen or fifteen.

Birds are in general less than quadrupeds; that is, the largest of the one class is far superior in magnitude to the largest of the other. The ostrich, which is the biggest of the Bird tribe, bears no proportion to the elephant; and the smallest humming-bird, the most minute of the class, is considerably less than the mouse. In these the extremities of nature are plainly discernible: the ostrich, seemingly covered with hair, and incapable of flight, approaches the quadruped class; while the humming-bird, which hardly exceeds the humble-bee in magnitude, and has a fluttering motion, seems nearly allied to the insect race. But these extremities are rather objects of human curiosity than utility: it is the middle order of Birds which man has taken under his protection, and which administers to his pleasures and his necessities. Wild Birds are, for the most part, of the same magnitudes and shapes; and still retain strong marks of their original nature. But it is far otherwise with domestic fowls: these, changing at the will of man, and according to the variety of climates to which they are consigned, the food with which they are supplied, and the purposes for which they are employed, vary in their colours, shape, and magnitude, as well as in the nature and taste of their flesh.

That Birds are capable of receiving instruction, is abundantly manifest. A very surprising instance of this kind was seen a few years ago in London; where a Canary Bird was taught to pick up the letters of the alphabet, and so to arrange them at the word of command, as to spell the name of any person in company; while the motions which on this occasion were given by the master, and obeyed by the little animal, eluded the discernment of every spectator.

The remarkable docility of the hawk, the parrot, the magpye, the bullfinch, and a variety of other Birds, can hardly have escaped the notice of the most superficial observers of nature.

Birds are distinguished either by their living on the land or in the water; and both classes are easily known by their legs and toes. The toes of all land Birds are divided, without any membranes or webs between them; and their legs and feet serve for the purposes of running, grasping, and climbing.

climbing. The legs and feet of water-fowls, on the contrary, are adapted either for wading in the water, or swimming on it's surface. The legs of those which wade are usually long and naked; and the toes of those which swim are webbed together, as in the feet of a goose; which serve, like oars, to impel them forward with greater velocity. The formation of land and water fowls is, therefore, as distinct as their habits; and Nature herself, in methodizing animals of the feathered creation, seems to offer us this simple distribution. But, as the number of Birds already known amounts to near a thousand, and new species are daily adding to the catalogue, it is not sufficient to be able to distinguish a land from a water fowl; we ought also to be capable of making a discrimination between the different sorts of Birds, and even the varieties in the same kind, when they are presented to our view.

Linnæus divides Birds in general into six classes; namely, the rapacious kind, the pye kind, the poultry kind, the sparrow kind, the duck kind, and the crane kind; the various sorts of land Birds being comprehended in the four first, and those which belong to the liquid element in the two last.

Birds of the rapacious kind constitute that class of carnivorous animals which live by rapine: they are distinguished by their beaks, which are hooked, strong, and notched at the points; by their short muscular legs, their strong toes, and their sharp and crooked talons; by the strength of their bodies, and the impurity of their flesh; by the nature of their food, and by the cruelty and ferocity of their manners.

The beaks of Birds of the pye kind are differently formed from those of the rapacious tribes, which in some degree resemble a wedge, being fitted for the purpose of cleaving: their legs are short and strong; their bodies are slender and impure; and their food is miscellaneous. They breed in trees; and the females are fed by the males during the time of incubation.

The bills of Birds of the poultry kind are somewhat convex, for the purpose of gathering their food; the upper parts of their beaks hang over the lower; their bodies are fat and muscular; and their flesh is white and pure. They live principally on grain, which is moistened in their crops; they make very inartificial nests on the ground; lay a great number of eggs; are strangers to connubial fidelity; and, unlike the other classes of Birds, are promiscuous in their amours.

All the beautiful and vocal classes of Birds which adorn our fields and groves, are comprehended under the sparrow kind. Their bills resemble a forceps; their legs are formed for hopping along; and their bodies, which are tender, are pure in such as feed on grain, but impure in such as feed on insects. They chiefly inhabit trees: many of them shew abundance of design in the structure of their nests; and they are remarkable for their fidelity in the connubial compact.

The bills of Birds of the duck kind, which are smooth, covered with skin, and nervous at the points, serve as a kind of strainers to their food. Their legs are short, their feet are formed for swimming, and their toes are connected by membranes. They pass the greatest part of their time in the water, but generally breed on land.

The bills of Birds of the crane kind are formed for the purposes of searching and examining the bottoms of pools; their legs are long, and adapted for wading; their toes are not webbed;

their thighs are half naked; their bodies are slender, and covered with thin skins; their tails are short; and their flesh is savoury. They live on animal food, and generally build their nests on the ground.

Such are Linnæus's divisions of Birds; which, at first sight, appear natural and comprehensive: but he who, while attending to such arbitrary distributions, should imagine he was making considerable progress in the study of natural history, would find himself egregiously mistaken; and, if he is inclined to enter deeply into the plan of this great naturalist, he will often find Birds the most dissimilar in nature thrown together into the same class: the unavoidable consequence of all attempts at complete systematic arrangements of nature.

BIRD OF PARADISE. This most beautiful bird belongs to the family of the pye kind; of which naturalists have enumerated several species, though we are indebted to the recent discoveries of Sonnerat for some of the most elegant. Indeed, few birds have more puzzled and deceived the learned than the Bird of Paradise. Some have described it as an inhabitant of the air, living only on the dew of heaven, and never resting on the earth; others, though they have acquiesced in the latter part of it's history, have nevertheless allowed that it subsists on flying insects: and some have even asserted that it has no legs; while others not only contend that it has very large and strong ones, but absolutely rank this animal among birds of prey.

The amazing beauty of the plumage of this bird on the one hand, and the deformity of it's legs on the other, seem to have given rise to the most erroneous reports. The natives of the Molucca Isles, of which the Bird of Paradise is an inhabitant, perceiving the strong inclination of Europeans for this beautiful bird, carefully cut off it's legs before they brought it to market; and thus concealing it's greatest deformity, they considered themselves as entitled to rise in their demands. One deceit led to another: the buyer, finding the bird without legs, naturally enquired after them; and the seller thought it his interest to deny that it ever had any. Thus far the Europeans were imposed on by others; but afterwards they imposed on themselves. Seeing so beautiful a bird destitute of legs, they concluded that it could only live in air, where those members were unnecessary: the extraordinary splendor of it's plumage assisted this deception; and, as it possessed celestial beauty, it was honoured with an imaginary celestial residence; and from this circumstance it's name is derived, as well as the numerous fictitious reports which ignorance and design have propagated concerning it, and which blind credulity has believed. Error, however, is short-lived; and time has discovered, that this bird has not only legs, but that they are very large and strong in proportion to it's size. Credulity, when undeceived, runs into the opposite extreme; and accordingly, very soon after, this bird was branded with the character of being extremely rapacious; and, from the amazing rapidity of it's flight, was deemed qualified for extensive rapine.

The Birds of Paradise, which exceed all others in the beauty, variety, and peculiar construction of their plumage, associate in large flocks in the delightful spicy woods and groves of their native islands; and the inhabitants themselves, who are not insensible to their superior charms, give them the name of God's Birds. From the rapidity of their flight,

flight, as well as from their being continually on the wing in pursuit of insects, their usual prey, they are sometimes called the swallows of Ternate. However, as the country where they breed is visited with tempestuous seasons, during which rains and thunders continually disturb the atmosphere, these Birds are seldom seen at such times; and it is supposed that they then migrate to countries where their food is to be found in greater abundance; for, like swallows, they have their stated periods of return.

In the beginning of the month of August, they are seen flying together in great numbers; and, as the inhabitants of the Molucca Isles are inclined to believe, following their king, who is distinguished from his subjects by the beauty of his plumage, and that respect and veneration which they are supposed to render him. In the evening they perch on the highest trees of the forest; and particularly one which bears a red berry, on which they sometimes feed when they find a deficiency of more desirable support. The natives, many of whom make a trade of killing and selling them to Europeans, generally conceal themselves in those trees to which the birds are known to resort; and, having furnished themselves with arrows, exert their utmost endeavours to shoot the king: this being effected, the greatest part of the flock become an easy prey. When they have taken a number of these birds, the usual method is to gut them, and cut off their legs; they then thrust hot irons into their bodies, the heat of which dries up all internal moisture; and, filling the cavities with salt and spices, carry them to the usual resorts of Europeans.

BIRD OF PARADISE, COMMON. This Bird is, in appearance, as large as a pigeon; but its body, in reality, is by no means bigger than that of the common thrush. Its head, throat, and neck, are of a pale gold colour; the base of the bill, the sides of the head, and the throat, are covered with black feathers as soft as velvet, and changeable like those on the neck of a mallard; the hinder part of the head is of a shining green mixed with gold; the body and wings are chiefly covered with beautiful brown, purple, and gold feathers; the superior parts of the tail-feathers are of a pale yellow, those under them being whiter and longer, so that the extremity of the tail appears to be wholly white; and from the upper-part of the rump proceed two slender filaments, longer than the whole body of the bird, and bearded only at the ends.

BIRD OF PARADISE, OF MARCGRAVE. This bird, which is of the size of the swallow, has a small head and eyes, a sharp bill, thick feet, and crooked claws. The feathers about the bill are silky, being a mixture of green and brown above, and black below; the superior part of the neck is of a gold colour, and the inferior is a mixture of green and gold; the breast is of a deep brown; and the rest of the body, wings, and tail, are of a beautiful brownish colour, the long feathers near the sides being of a gold colour near their rise, but in their other parts of a whitish yellow, and the two projecting quills of a gold colour at their rise, but becoming of a darkish brown towards their extremities, and considerably bent.

BIRD OF PARADISE, GREATER. This species is about the size of a blackbird. The wings, when closed, measure seven inches; the long shafts springing from the rump, twenty-seven inches; and the longest of the soft loose feathers, rising from under the wings, twenty-one inches. The bill is about an inch and three-quarters long; and, from its tip,

to the extremities of the common or shorter feathers of the tail, about twelve inches. The bill has a slight convexity towards the point, and is of a dirty yellowish green colour; the fore-part of the head is covered with black feathers of a velvet gloss, which entirely surround the bill; the throat is covered with green feathers of the same velvet fabric, shining with a golden gloss; and fine yellow feathers extend from the upper part of the head to the sides of the neck, and almost encircle the green ones on the throat. The breast is covered with plumage of the common structure, and of a fine dark purplish colour; the rest of the body, the back, the belly, the wings, and the tail, are of a bright reddish chestnut colour; but the inside of the wings, and the under-side of the tail, are much darker than the upper. Two black filaments, like horse-hairs, but stiffer and stronger, spring from the rump; having narrow webs on both sides, for about four inches of their length.

This Bird is chiefly remarkable for the plats of feathers under the wings on each side, which extend themselves a great way beyond the common feathers of the tail. These feathers are of a very fine structure, and exceedingly light; and the webs are so very open, that they may be seen through like gauze. The longer feathers are of a light reddish brown; and the shorter, which fall over them, are of a very bright yellow, with a reddish tinge at their tips. They fall either above or under the tail, but are so very loose, that they disclose the tail either way. The legs and feet, which are shaped like those of the pye kind, are armed with claws of a moderate strength, and of a dark brown colour.

BIRD OF PARADISE, KING, OF EDWARDS. This very elegant bird is about the size of the chaffinch. The bill is pretty straight, somewhat slender, and of a yellow colour towards the angles of the mouth. The upper mandible of the bill is covered half way with velvet feathers of an orange colour; the head is covered with velvet or plush-like feathers, which seem to be characteristic of the genus; the neck, the back, the upper sides of the wings, and the tail, have feathers of the common structure, of a full red colour a little inclining to chestnut, and of a most beautiful gloss; the under part of the neck has a mixture of black, blended with red; the insides of the greater feathers of the wings are of a reddish yellow; the inner covert-feathers of the wings are white; and the under side of the tail is dusky. Under each wing there is a remarkable tuft, composed of seven or eight feathers of a dark blackish brown colour, with very fine glossy green tips; and each feather has a transverse bar or line of a whitish colour which parts the green part of it from the dusky. On the breast there is a crescent of a shining dark green colour, the horns of which point upwards; and this crescent is divided from the neck by a yellowish light line passing transversely above it. The belly, thighs, and coverts under the tail, are white; but towards the knees the colour becomes a little brownish. Five stiff naked stems of feathers, each about six inches long, spring from the upper sides of the middle of the tail, which towards their extremities are beset with webs on one side, and curled round so as to form circular terminations, flat and shining, of a variable colour partaking of red and green. The legs of this bird are of a dark brown; and it has four strong light-coloured toes.

BIRD OF PARADISE, KING, OF CLUSIUS. This bird

bird is the smallest of the genus. The wings are considerably longer than the body; the bill is white; the lower part of the upper mandible is covered with a sort of red silky down, as well as the forepart of the head, but the middle part about the eyes is full of black specks; the feathers on the neck and breast, which resemble silk, are of a deep black colour; the back, wings, and tail, are of a dusky yellow; beneath the breast is a black stripe as broad as the little finger; and the feathers which cover the belly are white, but black near the wings. The naked quills are slender and black, and rolled up into a kind of balls at the ends; on one side of which balls there are very fine shaggy hairs, their upper parts being of a shining deep green, and their under ones of a dusky yellow.

BIRD OF PARADISE, KING, OF SONNERAT. This bird, as described by that very ingenious voyager, and accurate naturalist, who says that all his predecessors have either given an imperfect idea of it, or copied it from defective models, is about the size of the common European blackbird. Its head, neck, throat, back, tail, and wings, are of a shining red, as bright and vivid as carmine, and of a soft and silky appearance. The middle of the belly is white, terminated by a transverse bar of green below the neck; the feathers which form this bar being of a brightness and polish resembling metal. On each side of the belly, beneath the wings, there are long feathers, brown at their bases, and also a considerable way upwards, but terminating in green points of the same lustre as the transverse bar on the breast. From the middle of the tail proceed two long filaments or shafts of blackish feathers without beards, which extend far below the tail and wings; and, near their extremities, these shafts become bearded on one side, and convolving themselves, form a pretty large circle, with an opening in the centre; which circle is of an emerald colour, bright and varying. Above the eyes there is a black spot; the irides are yellow; and the bill and feet are of this last colour.

BIRD OF PARADISE, GOLDEN. This species is somewhat larger than a swallow. The bill, which is pretty long in proportion to its size, is of a brownish colour towards the head, and black at the point, with a little incurvation downwards. Between the eyes and the bill there are some black velvet feathers, narrow at the base of the upper mandible, and extending themselves from the lower mandible about an inch down the throat. The head, the upper side of the neck, and the back, are covered with feathers of a very fine reddish orange or gold colour, long and loose on the neck, and falling a little over the breast. The breast, the belly, and the larger feathers of the wings, are of a very beautiful yellow, or pale orange colour; and the covert-feathers of the wings are black, with a slight mixture of yellow. The golden or yellow colour of this bird is so extremely vivid, as to baffle all imitation. The tail-feathers are of a deep black above, and of a rusty black beneath, the under-parts of their shafts appearing yellowish; and all of them have very narrow borders of yellow just at their tips. The legs are of an olive colour, and the claws are pretty strong.

BIRD OF PARADISE, PYED. This bird has a dusky or black bill, compressed like that of a duck, and at the base of the upper mandible there are black stiff hairs. The head and neck are entirely black, adorned with a crest of loose slender feathers bending backwards. The body, except the wings, is wholly white; the prime quills, which are

black, have a little whiteness at their roots, and the bastard-wing which covers their bottoms is of the same colour. The quills next the back are black in the middle, and white on the edges; the row of feathers immediately above them is the same; and the lesser covert-feathers of the wings are white, with a very fine dash of black down each feather. The tail is as long as that of a magpye, the two middle feathers exceeding the rest by ten inches: the tail-feathers are white, the shorter ones being tipped and bordered with a fringe of black; and the shafts of these feathers are black, except so much of the long ones as extends beyond the shorter. The legs, feet, and claws, are of a lead colour; and the feet resemble those of the king's-fisher, the middle and exterior toes of each foot being joined together almost to the claws, and the middle and inner ones to the first joint.

BIRD OF PARADISE, VIOLET-THROATED, OR SUPERB. This species, which is somewhat larger than a blackbird, has a black tuft proceeding from the base of the bill, composed of fine short feathers standing erect. The head, the superior part of the neck, and the back, are covered with green plumage of a golden tinge; which, both to the eye and touch, has all the gloss and softness of velvet. The wings are of a deep black, but without any gloss; while the tail, on the contrary, though entirely black, appears like velvet, and is slightly shaded with blue. The throat is of a varying violet, the feathers which cover it having a silky appearance; and the belly is of a vivid green, both sides, beneath the wings, having tufts of black velvet plumes of the same length as the wings. The bill is black, and the legs are brown. This very elegant species was first discovered by Sonnerat, in his voyage to New Guinea; of which country it appears to be a native.

BIRD OF PARADISE, GOLDEN-THROATED. This bird is nearly of the size of the common dove. From the superior part of the bill springs a tuft, which the animal seems capable of elevating, and which is composed of the most beautiful feathers, pretty strong, and furnished with slight webs. The base of the tuft towards the bill is wholly black; but the rest of it is black and white intermixed. The upper-part of the head, the cheeks, and the beginning of the throat, are of a fine black shaded with violet. Behind the head there is a gold-coloured band, composed of the same kind of feathers with those which cover the throat. These feathers, which are long, narrow, and thick set, are black at their roots, of a reddish cast upwards, and they terminate in golden lips: yet they are arranged in such a manner, that nothing but the gold-colour is externally perceptible. This colour, however, varies according to the lights in which it is viewed: sometimes it appears like different shades of gold; at others with an admixture of green, red, or violet; and not unfrequently with all these colours at once. The back is a deep black with a slight tinge of violet; and the tail and wings, which are black, have a velvet gloss. From the under-part of the wings proceed long black feathers pointing upwards, which embrace the wings when closed; the beards of these feathers are not united together, but separated like those of the ostrich.

This bird is peculiarly distinguished from all others of the genus by three long feathers springing from both sides of the head, behind and a little below the eyes; these extend to a fourth part the length of the tail, and terminate in black webs

webs of an oval figure; their shafts are likewise black, and appear, when minutely inspected, to be slightly bearded on one side; at their insertions, they are very close to each other, but they soon diverge in straight lines pretty distant at their extremities. Sonnerat informs us that, having never seen this bird alive, he is at a loss to pronounce whether, in the act of flying, it carries these extraordinary feathers along its body, or in a transverse direction; but as they are situated near the auditory passage, he seems inclined to believe that they answer the same purpose as the ear-drums in quadrupeds. The feet and bill of this species are a clear black; and the irides are yellow.

BIRD OF PARADISE, MAGNIFICENT. This bird is about a third part larger than a common pigeon. The top of the head is of a shining red colour; the throat is of a blackish brown; the upper part of the neck is adorned with long yellow feathers, which have the splendor and polish of gold; the back appears as if gilt; the under part of the neck and belly are of a blueish-green, with a silky gloss; the short coverts of the wings are of a blackish brown, mixed with yellow; the large feathers of the wings are of a yellow or pine tinge, and those on the edges of the wings have blackish brown extremities; the vent and tail are brownish; and the feet and bill are yellow. From the middle of the tail spring two filaments, twice the length of the bird, furnished on their exterior sides with small, fine, and almost imperceptible webs, of a greenish colour and most beautiful polish.

BIRD OF PARADISE, GREEN. The characters of this bird are the same with the rest of the genus, except that the appendages, or long crisped feathers, spring from under the wings. It is somewhat longer and thicker than the common dove, and is entirely of a beautiful green colour, uncommonly brilliant and glossy. The feathers on the head, neck, and body, are short, and arranged like scales one over the other; the feet and bill are blackish; and the irides are red. This creature appears of different shades, according to the light in which it is viewed; sometimes green, and at others blue.

BISCIA. A name sometimes given to the acus, or tobacco-pipe fish; or, as it is frequently called, the needle or trumpet-fish.

BISHOP. The name of a very musical bird of Louisiana; the song of which, some naturalists tell us, continues for the space of a *miserere*, or forty minutes, during all which time it does not appear to breathe: it is then silent twice as long before it renews its strain; so that the alternative of song and rest, according to these writers, continues two hours.

BISON. This animal, which is called *suber* by the Lithuanians, and *wisent* by the Germans, is unquestionably a variety of the cow-kind, distinguished from the rest by a lump between its shoulders. Some of these creatures are very large, and others as diminutively small. In general, the fore-parts of this quadruped somewhat resemble those of the lion, having a long shaggy mane, and a beard under the chin; the head is small; the eyes are red and fiery; the looks are furious and commanding; the forehead is extensive; and the horns are placed very far asunder. A bunch, almost as high as that of a camel, grows on the middle of the back, which is esteemed a peculiar delicacy by the inhabitants of those countries where the animal is found in a wild state. There is no pursuing the Bison with safety, except in forests where there are

trees large enough to conceal the hunters from its view. It is generally taken by means of a pit-fall: in order to which, the inhabitants dig a hole in the ground, and cover it with grass and boughs of trees; after which, provoking the animal to pursue them, they get on the opposite side of the pit-fall; while the enraged creature, running with great violence towards them, falls into the trap prepared for it, and is quickly overpowered and slain.

Bisons are found in all the southern parts of the world; throughout the vast continent of India, and from Mount Atlas to the Cape of Good Hope in Africa. They have soft smooth hair; are very fleet; and in some measure supply the want of horses. In a domestic state, they are remarkably expert and docile, many of them spontaneously bending their knees, in order to take up or deposit their burdens. They are treated by the natives of those countries with a degree of tenderness proportioned to their utility; and the respect for them in India has even degenerated into blind veneration. These animals are also highly esteemed by the Hottentots: they are the companions of their pleasures and fatigues; and are considered by them as their protectors and servants, as they assist them in attending their flocks, and guard them against every invader. While the sheep are grazing, the faithful backery (as the Bison is here called) stands or grazes before them: still, however, attentive to his master's looks, he flies round the fields, obliges the flocks to keep within proper limits, and shews no mercy either to robbers or strangers.

But the Bisons are not only taught to combat the spoilers of their masters flocks, but even the enemies of their nation; and, accordingly, every Hottentot army is furnished with a proper herd of them, which is let loose against the enemy on convenient occasions. These creatures, when liberated, overturn all before them; striking down their opponents with their horns, and trampling on them with their feet: thus they frequently procure their owners an easy victory before they themselves have had an opportunity of striking a blow. Animals so serviceable cannot be supposed to go unrewarded: the Bisons and their masters occupy the same cottage; and by degrees the creatures conceive an affection for them; while, in proportion as the man approaches to the brute, the brute seems to acquire almost human sagacity.

The Bisons, or hunched cows, differ greatly from each other in the several parts of the world. The wild ones arrive at greater magnitudes than the tame: some have horns, and others are without any; in some they are depressed, while in others they are raised in such a manner as to be adapted either for weapons of defence or annoyance. All of them, however, when tamed, are equally docile and gentle. Those of Malabar, Abyssinia, and Madagascar, are extremely large; but those of Arabia Petræa, and most parts of Africa, are small.

The American Bison differs from that of the ancient continent in several particulars: it is larger than the ox; has low, black, short horns, with a large beard under its chin; and the hair springing from between its horns falls over its eyes, and gives it a frightful appearance. It has a bunch on its back, which begins at the haunches, and gradually increases till it arrives at the shoulders: the first rib before is half a yard higher than those on the back, and is three inches broad. The whole bunch is covered with long reddish hair; and the rest of the body with a sort of black wool which

is much valued. The breast is large; the buttocks are narrow; the neck and tail are very short; and the head is disproportionably big.

These animals have so quick a sense of smelling, that it is very difficult for either men or dogs to get near them, except on the leeward side; and they are so extremely timid, that a whole herd of them will fly from a single dog: when wounded, however, they become very furious, and turn on the hunters with determined resolution. The flesh of the females is excellent; and the skins of both sexes are peculiarly valuable.

In the western parts of New France, on this side the Mississippi, the hunting of these beasts forms a favourite diversion: the hunters, after ranging themselves in four lines, forming a very large square, begin to set fire to the grass, which at the hunting season is usually very dry and long. As the fire runs along the lines, they advance closer together; and the Bisons, who are extremely afraid of that element, speedily fly from it, and get into a close body: on which the natives attack them very briskly, and seldom suffer any to escape.

In Carolina numbers of these creatures are brought up tame: notwithstanding which, some of them still retain their wild disposition; for they cannot long be confined within any fences, but frequently escape, and ravage the fields; and, wherever they penetrate, draw the whole tame herd after them.

Linnaeus calls the Bison a beeve with horns turned upwards, a hunch-back, and a very long mane and beard. The tongue of this animal is said to be as rough as a file; with which if it should happen to touch a man's cloaths, it seldom fails to get him in it's power, and to tear him to pieces. But the Bison seems to have a natural aversion to red; and accordingly, if it meets with a piece of cloth of that colour, it never leaves it till it's hue is entirely defaced.

BITTACUS. A name given by Ctesias, and some others of the Greek writers, to the parrot. It seems to be a corruption of psittacus, for which it is indiscriminately used.

BITTERN. A bird of the heron kind, called by some naturalists the ardea stellaris; and, by others, taurus botaurus, butorius, and ocnus: in English, the butter-bump and mire-drum.

This bird is distinguished from all others by it's dismal hollow noise; of which it is impossible to convey an adequate idea in words to those who have never had an opportunity of hearing it: it is somewhat like the interrupted bellowing of a bull, but more hollow and loud; and is sometimes heard, at the distance of a mile, as if proceeding from some formidable being resident at the bottom of deep waters. The bird, however, which utters this terrific sound, is not so large as the heron; the bill is also weaker, and only four inches long; the upper mandible is a little arched, the edges of the lower being jagged; the irides next to the pupil are yellow, and above the yellow they incline to hazel; the eyes are situated extremely low towards the bill; and the ears are large and open. The crown of the head is black, the feathers on the hind-part forming a kind of short pendent crest; the plumage is of a very pale dull yellow, spotted and barred with black; the greater coverts of the wings, the quill-feathers, and the bastard wings, are of a bright ferruginous colour, regularly marked with black bars; the lower belly is of a whitish yellow; and the tail is very short, consisting only of ten feathers, of the

same colour as the wings. The feathers on the breast are very long, and hang loose; the legs are of a pale green; the claws are long and slender, the inside of the middle claw being finely serrated, to enable the bird to hold it's prey; and the hind claw, which is remarkably long, and is a supposed preservative for the teeth, is sometimes set in silver, and used as a tooth-pick.

The Bittern is a very solitary bird: it's bellowings are chiefly heard from the beginning of spring to the end of autumn; and however dreadful they may seem to us, they are probably either the calls of courtship, or the expressions of connubial felicity. From the loudness and solemnity of it's note, many have been induced to suppose that the creature makes use of external instruments to produce it, and that so small a body is incapable of such sonorous exertions. The vulgar are of opinion, that it thrusts it's bill into a reed, which serves as a pipe for swelling the note above it's natural pitch; while others imagine that the Bittern immerses it's head in water, and then produces it's boomings by blowing with all it's might. But, after all, it is evident that the wind-pipe of this creature is fitted to produce the sounds for which it is remarkable; and that it is often heard in situations where there are neither reeds nor water to assist it. It conceals itself in the sedges by day, and begins it's call in the evening, booming six or eight times; and, after a silence of some minutes, renewing it's strains. When it's retreats among the sedges are invaded, as well as when it dreads the approach of an enemy, it is perfectly silent; and, while in a state of domestic captivity, it remains a mute, forlorn bird, equally incapable of attachment and instruction. But though it's bellowings are always performed in solitude, it has another kind of scream, which it generally uses when in the act of seizing it's prey, and to which it is sometimes impelled by fear.

This bird, though of the heron kind, is neither so destructive nor so voracious. It is a retired, timid animal, subsisting principally on frogs, insects, and vegetables; and though it greatly resembles the heron in it's form, differs essentially from that bird in it's manners and appetites. The heron inhabits the tops of the highest trees; the Bittern forms it's nest either in a sedgey margin, or amidst a tuft of rushes. The heron builds it's habitation with sticks; the simpler one of the Bittern is composed of sedges, the leaves of water-plants, and dry rushes. The heron feeds it's young for many days; the Bittern, after three days, leads them abroad in search of their food. In short, the heron is lean and cadaverous, and subsists chiefly on animal food; while the Bittern is plump and fleshy, and feeds on vegetables when more nutritious aliment cannot be found.

With whatever terror the voice of the Bittern inspires the simple, it's flesh is greatly esteemed among the luxurious: for which reason, it is as eagerly sought after by the fowler, as shunned by the peasant; and, as it is a heavy-rising, slow-winged bird, it does not often escape him. Indeed, it seldom rises till almost trod upon, and seems to seek protection rather from concealment than flight. At the latter end of autumn, however, towards evening, it appears to throw off it's wonted indolence; and is then seen rising in a spiral ascent till it gets above human sight; making at the same time a very singular noise, altogether different from it's former boomings. Thus the same animal is often known to assume different habits: and while the Latins have

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have given the Bittern the name of the star-reaching bird, or the stellaris; the Greeks, taking it's character from it's more constant habits, have given it the title of the oknos, or the lazy.

BITTERN, SMALL. This species is about fourteen inches long, and twenty broad. The bill is surrounded at the base, and above the eyes, with a yellow naked membrane, extending as far as the nostrils; the bill itself is two inches long, and sharp at the point; the upper mandible is black, and the lower yellow. The neck is five inches long, and considerably curved; the feathers on the top of the head are brown, rising a little in the manner of a tuft; the upper part of the neck is of the same colour, as well as the back, wings, and tail, excepting a few whitish and tawny spots; the chin, the lower part of the neck, the breast, and the belly, are of a light brown, mixed with white and ruddy colours; the tail is about an inch long; and the legs, which are four inches, are of a dark brown before, and yellow behind.

BITTERN, BRAZILIAN. The bill of this species is black towards the end, and yellowish at the base; the head, and upper part of the neck, are ferruginous, streaked with black; the feathers on the lower part of the neck are long and loose like those of the common Bittern, the upper parts of them being rust-coloured, and the lower white spotted with black. The back, the coverts of the wings, and the secondaries, are barred with black and ferruginous; the breast and belly are white in the middle, and barred with black on the sides; the tail is barred with black and white; and the legs are of a yellowish brown. This Bird is a native of South America; and is esteemed very excellent food, especially when young. The Brazilians lay wait for them among the sedges, where they shoot them in great numbers.

BITTERN, LITTLE BRAZILIAN. This bird is somewhat less than a pigeon; but the neck is seven inches long. At the base of the bill the skin is of a yellowish colour; and the upper part of the head is of a steel colour, interspersed with palish brown feathers. The whole neck, breast, and belly, are covered with white and ash-coloured feathers; but the back is partly black, and partly of a dark steel colour, mixed with some feathers of a cereous hue. The long feathers of the wings are greenish, terminating with white spots; and the other parts above are beautifully variegated with steel, brown, yellow, and ash colours. The legs, as far as the middle, are naked; the feet are of a blossom colour; and the irides are of a bright yellow.

BITTERN, NORTH AMERICAN. This species is somewhat less than the English Bittern; the wings, when closed, being under twelve inches. The bill is straight, lessening gradually to a point; the top of the upper mandible, as well as the point of the bill, is black; the edges of the upper, and a considerable part of the lower mandible, are yellow; and between the nostrils and the eyes there is a naked yellow skin. The top of the head is covered with longish, soft, black feathers; the sides of the head with reddish; the under part with white feathers; and the neck with long slender feathers, partly brown and partly white, spotted with reddish brown. The back, rump, tail, and coverts of the wings, are of a bright reddish brown, variegated with a mixture of transverse black lines. The first prime quills are wholly black; those next them are black, with reddish tips; and the remainder are reddish and black. The belly, thighs,

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and covert-feathers under the tail, are whitish, the belly and thighs being marked with oblong spots of black; the legs are bare above the knees; the toes are pretty strong, the middle claw being serrated, and the hinder one very long; the middle and exterior toes are joined a little way up by a skin or membrane; and both the legs and feet are covered with yellow scales. This bird is frequently found about Hudson's Bay.

BITTERN, LITTLE BROWN. This species is about the size of the lapwing. The wings, when closed, measure six inches; and the bill, which is formed like all others of the ardea kind, is about two inches and a half from the point to the angles of the mouth. Between the bill and the eyes the skin is bare, as in the common Bittern; the top of the head is black; and on each side of the head there is a black line proceeding from the angles of the mouth: the neck is covered with long, loose, reddish brown feathers, lighter before, and darker behind; the back is covered with reddish brown feathers, the middles of which are black; and the belly and thighs with light brown feathers of a loose texture, having long narrow black spots down their middles. The wings are of a reddish brown colour, lighter than the back; the lesser coverts are spotted like the back; but the next coverts above the quills, as well as the quills nearest the back, are brown, with a very slight tinge of black: the greater quills, and the tail-feathers, are black; the pinion which covers the bottoms of the greater quills is also black; the covert-feathers in the insides of the wings, the lower belly, and the coverts beneath the tail, are white; the insides of the quills, and the under-sides of the tail-feathers, are cinereous; the legs and feet are of a greenish colour; the exterior toe is connected to the middle by a membrane at it's bottom; and the middle claw is pectinated at one of it's edges. This bird is a native of the country near Aleppo.

Dr. Shaw, in his travels to Barbary and the Levant, describes another species of Little Bittern, called by the Moors boo-onk; that is, long neck. It is somewhat less than the lapwing; the neck, the breast, and the belly, are of a light yellow colour; the back, and the upper parts of the wings, are of a jetty black; the tail is short; the feathers of the neck are long, and streaked with white or light yellow; the bill, which is green, measures about three inches; the legs, which are of the same colour, are short and slender; and, in walking, or searching for it's food, the bird is capable of throwing out it's neck seven or eight inches. It is, however, very probable that this species is only a slight variation of the former, or perhaps the same bird of a different age or sex.

BIVALVE. A class of shells composed of two pieces or parts; which, by means of a proper connection by hinges, play on each other, so as to open, shut, and perform all other functions necessary to the œconomy or modes of life of the animals included in them.

Bivalves may be arranged into three general parts; namely, such shells as have unequal valves, and shut close, as the escallops, oysters, anomia, &c. such as have equal valves, and shut close, as the cockles, tellens, muscles, &c. and, lastly, such as have valves which never shut close, but are always open, or gaping, in some parts, as the bafon conques, or bear's paws, the chama, pinnæ, solens, &c.

Such are the distributions offered by that very accurat

accurate conchologist Dacosta: Linnæus, however, divides all Bivalves into fourteen families, which he characterizes by the peculiar formation of their hinges in a very scientific manner.

The species of Bivalves are very few when compared to the immense varieties of univalves; nor are they comparable to them in beauty: and farther, there are no land Bivalves, and few of fresh water; whereas the species of land univalves are extremely numerous, and many kinds also occur in the fresh water.

BLACKBIRD. A well-known bird, though of a retired and solitary nature, and the deepest-toned warbler of the woods. From the tip of the bill to the extremity of the tail is near eleven inches; the bill is an inch long, and of a yellowish saffron colour; but in the female the point and upper-part are blackish; and the inside of the mouth is yellow in both sexes, as well as the circumference of the eyelids. There are twenty-eight large feathers in each wing, of which the fourth is the longest: the tail is four inches and a half long; and consists of twelve feathers of equal lengths, except the last on each side, which is somewhat longer than the rest. The feet are black; and the exterior and posterior toes are equal, the first being joined to the middlemost in its lower part.

The plumage of the male Blackbird is of a coal-black colour, but that of the female of a brown or dark ruflet: however, when the former is young, it is rather brown than black, and has a reddish crest, and a greyish belly; so that it is not easily distinguished from the latter before it is a year old, and then the colour becomes fixed. The liver of this bird is divided into two lobes, of which the right is the biggest: it has also a gall-bladder; but the stomach is not so muscular as in other birds of this kind.

The note of the Blackbird, during the spring and summer seasons, when heard at a distance, is perhaps the most pleasing of all the songsters of the grove; but, when the bird is confined in a cage, its song is rather unpleasant, being loud and deafening. It may be taught, however, to whistle any tune, and even to imitate the human voice. It builds its nest with a considerable degree of art, lining the inside with hair and other soft materials; and the female lays four or five blueish eggs sprinkled with brown spots. In some very cold countries, and particularly on the Alps, Blackbirds are found of a pure white colour; but they are by no means numerous, and are therefore regarded as curiosities when imported into Britain.

If young Blackbirds be taken from their nests at the age of twelve days, they may generally be reared with great facility, care being taken to keep them clean, and to feed them with lean fresh meat cut very small, and mixed with a little moistened bread.

Blackbirds, even in a state of bondage, are usually very healthy; but when they begin to droop, it is proper to give them two or three house-fishers, with a little cochineal in their water. These birds are extremely ambitious of pluming their feathers; and therefore, when grown up, they should always be supplied with plenty of water.

BLACKBIRD, RED-BREASTED. This very curious bird is a native of Surinam, and is supposed to be the same with that described by Marcgrave under the appellation of the jacupu. The structure of the bill is very extraordinary, the lower mandible reaching very far into the sides of the head, and

being considerably broader and thicker at the base than the upper mandible. The bill is of a black or dusky colour, except the broad bases of the lower mandible, which are of a blueish ash. The whole body is covered with dusky black feathers, without any gloss, except on the fore-part of the head, the throat, and the beginning of the breast, where they are fringed with a fine crimson colour, externally appearing wholly red, but diminishing gradually on the sides of the breast, and on the belly, till wholly lost in the black. The insides of the wings are black; the tail is of the same colour, of a moderate length, and composed of twelve feathers, the middlemost being somewhat longer than the rest; and the legs and feet are of the common structure, and of a blackish colour.

BLACK AND WHITE BIRD, SMALL. This bird, which is a native of Jamaica, is only four inches long from the tip of the bill to the extremity of the tail, and seven broad when the wings are extended. The bill is straight, roundish, black above, white below, and half an inch long; the tail is an inch and a half long; the upper-part of the body is blackish variegated with white lines, the under-part being white, mixed with a small portion of black; the feet are of a greenish brown; and the claws are yellowish.

BLACK AND ORANGE BIRD. This species is likewise a native of Jamaica; and measures about four inches in length, and six in breadth when the wings are expanded. The bill is a quarter of an inch long, and broad at the base; and the tail is an inch and a half long. The head, neck, and back, are black, except that on the latter there is a slight tincture of orange; the wings and tail are brown, with stripes of an orange colour; the breast and covert-feathers of the wings are also orange; the breast is white; and the feet are black. This bird is said to subsist chiefly on ants.

BLACK CAP. A very small bird, scarcely weighing half an ounce. The crown of the head, in the male, is black, from whence it derives its name. The hind-part of the neck is of a light ash-colour; the back and coverts of the wings are of a greyish green; the quill-feathers and tail are dusky; edged with dull green; the breast, and the upper part of the belly, are of a pale ash-colour; the vent-feathers are whitish; and the legs are of a leaden hue. The female is distinguished from the male by the spot on the head, which in the former is of a dull rust-colour.

The Black Cap is a bird of passage, and leaves the British Isles before the commencement of winter: however, during its stay, it gratifies us with its song, which is so sweet, that in Norfolk this bird has obtained the name of the mock-nightingale. Its notes are generally full, sweet, deep, and loud, but of short continuance; and its modulations are desultory: but when the little warbler sits calmly, and is earnestly engaged in singing, it pours forth very sweet, but inward melody; and expresses a great variety of pleasant and gentle harmony, superior perhaps to that of any of our songsters of the grove, the nightingale excepted.

Orchards and gardens are the favourite retreats of the Black Cap: it generally builds its nest in some tree or shrub at a small distance from the ground, and lines it with the fibres of roots thinly covered with black horse-hair. It commonly lays four or five eggs of a pale reddish brown, mottled with a deeper colour, and sprinkled with a few dark spots.

BLACK-CAP, CEYLONESE. The bill of this bird is a little bent, and of a blueish colour; the crown of the head and hind-part of the neck are black; the back is green; the under side of the neck and the entire belly are of a light yellow; the wings are black, with two bars of white; and the tail is of a rust-colour.

The name of Black-Cap is likewise given by the vulgar in many counties of England to the pewit, a bird of the gull-kind; and it is also the common name for the English *parus palustris*, or marsh-tit-mouse.

BLACK-GAME. The common appellation for the urogallus, or tetrao minor; called also the grouse.

BLACK-FISH. This fish is said to resemble the sheat-fish in it's shape, though not above twenty inches long, and twenty ounces in weight. The head and back are black: and the lateral line runs directly from the head to the tail, through the middle of the side; below which, towards the belly, the colour generally changes to a dark purple; of which colour also is the under part of the head. The head is flat, and near five inches long; the body is round, till within a short space of the tail, where it becomes compressed; the mouth, which is rather small, is destitute of a tongue; the eyes are placed near the corners of the mouth, on the lower edge of the upper jaw; and there are four gills on each side, armed with a double row of sharp points, in a pectinated form. Near the gills there are two fins, consisting of seven rays; and a pretty strong prickly bone is connected to the fore-part. About an inch above the vent, there are two smaller fins; and another of considerable length extends from the vent to the tail. There is likewise another of the same kind that runs from the neck all along the back; but neither of these fins are united to the tail. The Black-Fish is caught in the River Orontes; and it is constantly and plentifully exposed to sale in the markets of Aleppo from November till the beginning of March. The flesh, which is extremely red, has a rank, strong taste.

BLANK. An appellation given by some authors to a species of the cod-fish, called gelbe, kolmulen, and asellus flavescens.

BLATTA. A genus of insects of the order of hemiptera in the Linnæan system: the characters of which are, that the head is inclined; the antennæ are setaceous; the wings are membranaceous; the thorax is flat, orbiculated, and marginated; the feet are formed for running; and there are two small horns above the tail. There are several species belonging to this genus.

Blatta is likewise the name of a species of beetle, called by Columna *scarabæus testudinatus*, and consisting of several varieties.

The word Blatta, according to some writers, was also used for the kermes insect; and, in the opinion of others, for the purple worm: but both these acceptations are liable to suspicion.

BLATTA, COMMON. See BEETLE, MILL.

BLATTA, YELLOW. This species of *scarabæus* is somewhat larger than the common fly. The shield which covers the breast is membranaceous, of an oval shape, and marginated; the cases of the wings are membranaceous and transparent, and of a brownish colour, with raised streaks marked with black spots: the legs are prickly, resembling horns; the feelers are long; and there are two articulated horns, or prickles, above the vent. This species is a native of Lapland; for which reason it is called by Linnæus the Lapland Blatta.

BLATTA, AMERICAN; or, COCK-ROACH. These insects, which are of a reddish brown colour, are extremely destructive and voracious. They herd together in such numbers, that it is almost impossible to keep victuals of any kind from their ravages; and they even eat leather, linen, and paper. They disappear on the approach of winter, but return towards the summer; and chiefly commit their devastations in the night-time. These Blattas lay their eggs in heaps, and wrap them all round in bags or webs, after the manner of some spiders. When the eggs are hatched, the young ones appear quite perfect, and leave their shells almost instantaneously. Being at first no larger than ants, they are capable of penetrating through the smallest apertures into boxes and chests, where they gnaw and destroy every thing within their reach. They have two very long horns or feelers; six hairy legs, with two claws, resembling forks, at their ends; and their heads, which are black, have reddish circles on their upper parts. When arrived at their full growth, they cast their skins, which burst on their backs; and then the Blattas, or Cock-Roaches, are perfectly formed. Their wings are soft and tender, being whitish at first, and afterwards of a reddish colour; but their heads, horns, and the rest of their bodies, retain the same shapes and colours as they possessed before the exuviae were shed.

BLEAK. This very common species of fish, the *alburnus cyprinus* of Linnæus, is found in many of our rivers. Bleaks generally keep together in large shoals; and, at certain seasons, they appear to be in great agonies, tumbling about near the surface of the water, as if incapable of swimming to any considerable distance: but in a short time they recover, and presently disappear. They seem to be troubled with a species of gordius, or hair-worm, of the same kind as those worms with which Aristotle tells us the ballerus and tillo are infested; and which torment them to such a degree, that they frequently rise to the surface of the water, and expire.

Bleaks seldom exceed five or six inches in length. Their bodies are slender, considerably compressed sideways, and not very dissimilar to sprats. Their eyes are large; their irides are of a pale yellow: their under jaws are long; their lateral lines are crooked; their gills, sides, and belly, are silvery; their backs are green; their fins are pellucid; their scales are deciduous; and their tails are much forked. Their fry, or young, during the month of July, appear in astonishing multitudes in the River Thames near Blackwall; and are known in London and it's vicinity by the name of white-bait.

Artificial pearls are made with the scales of the Bleak, after the following manner. Being removed from the fish, artists immerse them in a basin containing a little water, and then rub them against the bottom, as if they were grinding colours. This being done, they pour off the silver-coloured water into a glass, leaving the scales at the bottom of the basin; and then repeat the operation till nothing comes off, always pouring the water into other glasses. They then let it settle for ten or twelve hours, during which time the silvery matter sinks to the bottom; and then pouring off the water by a gentle inclination, that which remains is of the consistence of oil, and of the colour of pearls: this they mix with isinglass, or fish-glue, and with it varnish any sort of substance of the size of beads, particularly wax, alabaster, and glass: all which, after this operation, have the exact appearance of

pearls. But as these artificial pearls are not proof against moisture, workmen have a method of lining the insides of glass beads with the fluid, blowing in a little of it with a small pipe, and shaking it about till it fixes all over the internal surface. This being done, they throw them into a basket, and shake them together till they become quite dry; after which, in order to render them the more solid, they line them with wax. This is the genuine method of making the true French necklaces; the manufacture of which employs great numbers of that ingenious people.

BLENNY, or BLENNIUS. A genus of fish of the general order of acanthopterygii, according to the distribution of Artedi; and of the jugulares in the Linnæan system. The characters of this genus are, that the membrane of the gills has six bones; that the fore-part of the head is very sloping; that the body is smooth and slippery; that the teeth are slender; and that the ventral fins generally consist of two united rays.

BLENNY, CRESTED. This species is sometimes found on the shores of the British Isles, and is commonly about four or five inches long. On the head there is a small crest-like fin, which the fish is capable of erecting or depressing at pleasure; on the top of the head, between the eyes, there is a triangular prominence pointing backwards, and red about it's edges: the skin at the angle of the upper jaw is loose, and projecting; the dorsal fin extends from the hind part of the head almost to the tail; the ventral fin is small; the vent is situated under the ends of the pectoral fins; the body is smooth and slippery; and the colour is brown, and maculated.

BLENNY, GATTORUGINE. This curious species is seven inches and a half long. The body is smooth, and compressed on the sides; the belly is a little prominent; and the vent is situated as in the crested Blenny. The teeth are so extremely slender and thick set, that they appear almost setaceous: between the eyes there is a slight depression; and above each, exactly on the summit, there is a narrow loose membrane, trifurcated at the top, the distinguishing mark of the species. The pectoral fins, which are broad and rounded, consist of fourteen rays, extending beyond the webs, and giving a scolloped appearance to the edges; the ventral fins are like those of others of the genus; the dorsal fin consists of fourteen strong spiny rays, and nineteen soft rays, the last of which are the highest; the anal fin hath twenty-one rays, the ends in every fin extending beyond their webs; and the tail, which is rounded at the extremity, consists of twelve rays, divided towards their extremities. The colour of this species is dusky, marked across with wavy lines; the belly is of a light cinereous hue; and the lower part of the pectoral fins, as well as the extremities of the ventral fins, are of an orange colour.

BLENNY, SMOOTH. This very active and vivacious species frequents the rocky coasts of Anglesea; and, by the assistance of it's ventral fins, creeps up between the stones with great facility after the ebb has left them. It seems to subsist on shells and small crabs; and is so very tenacious of life, that it will live near a day out of the water. The general length of this fish is about five inches; the head is large, and sloping suddenly to the mouth; the irides are red; the teeth, which are slender, sharp, and close set, consist of twenty-four in the superior, and nineteen in the inferior jaw; the pec-

toral fins are broad and rounded, and composed of thirteen rays; and the ventral fins of no more than two thick rays, separated near the ends: the dorsal fin consists of thirty-two soft rays, and reaches from the hind-part of the head almost to the extremity of the tail. The vent is placed in the middle of the body; the anal fin extends almost to the tail, and consists of nineteen rays, tipped with white; and the tail is rounded at the extremity, and composed of twelve branched rays. The colour of this species varies considerably: in some it is quite black; in others, a deep olive, delightfully marbled with a still deeper colour; and others are spotted with white, sometimes disposed in rows above and beneath the lateral line.

BLENNY, SPOTTED. This fish is about six inches long. The sides are extremely compressed, and very thin; the head and mouth are small, the last pointing upwards, and the lower jaw sloping considerably towards the throat: the teeth are small; and the irides are of a whitish colour. The pectoral fins are rounded, and yellowish; and, instead of ventral fins, it has two minute spines; the dorsal fin consists of seventy-eight short spiny rays, running almost the entire length of the back: on the top of the back there are eleven round spots, which reach the lower half of the dorsal fin; these spots are black, and half encircled with white. The vent is placed in the middle of the body; and the anal fin extends from it almost to the tail. The back and sides are of a deep olive colour; the belly is whitish; and the tail is of a yellow hue, and rounded at the extremity. This species likewise frequents the coasts of Anglesea, and is used as a bait for larger fish.

BLENNY, VIVIPAROUS. This remarkable species was first discovered by Schonevelde, and afterwards found by that ingenious naturalist, Sir Robert Sibbald, on the coasts of Scotland. These fish generally bring forth two or three hundred young at a time. Their season of parturition is very early in the spring; and before midsummer they quit the bays and shores, and retire into the deep. Their flesh, which is very coarse, is used only by the poor.

Blennies are common in the River Esk, as well as at Whitby in Yorkshire, and some other parts of England. They are sometimes caught of the length of a foot. Their bodies are slender; their skins are smooth and slippery; their dorsal fins commence just behind their heads, and unite with those of their tails; their pectoral fins are rounded; their ventral fins consist of no more than four short rays each; their anal fins extend far, and unite with their tails; and their tails themselves are rounded. The tips of their tongues, their chins, throats, and anal fins, are of a fine yellow colour; and their dorsal fins, backs, and sides, are of a yellowish brown, stained with dusky lines and spots.

BLICEA. A small fish of the harengiform kind, commonly caught in the German and other seas; and supposed to be the same with the English sprat, which some naturalists regard as the young of the herring.

Blicea is likewise the name of a fresh-water fish of the malacostomous or leather-mouthed kind; seemingly the same with the more common kind of circaffius.

Blicea is also the name of an East Indian fish, which might more properly be called the harengus minor Indicus, or lesser Indian herring. It is harengiform in most particulars, except that it is somewhat more depressed, and thinner. It is exactly the

the same colour with the herring; the tail also is forked; but the head is of a singular figure, the eyes, and the extremity of the snout, being extremely large.

This fish is principally caught on the Malabar coast. It is extremely well tasted; and is cured with greater facility than most other East India fish: it is therefore much valued, and sent into all the neighbouring parts of the country in pickle. The natives also use it for another very beneficial purpose, at those seasons when it is very plentiful; namely, that of manuring land on which rice is intended to be sown.

BLIEGG. A German appellation for the fish usually called the bleak, the albula and alburna of naturalists.

BLIKE. A name sometimes given to an anadromous fish somewhat resembling our river-chub; called by Gesner capito anadromous; but more generally known by the title of zerta.

BLIND. A Cornish name for the *afellus luscus*, commonly called the bib. It is a fish of the cod kind, but never grows to any considerable size.

BLIND SERPENT. A reptile very common at the Cape of Good Hope, furnished with black scales, spotted with brown, red, and white. It is often found in the clefts of rocks, and similar situations, where it is easily dispatched. It does not appear to be very fierce; and its bite is said to be less dangerous than that of most other serpents.

BLIND-WORM. A very harmless reptile, though formidable in appearance. The usual length of this species is eleven inches; the irides are red; the head is small; the neck is still more slender, and from it the body suddenly increases, and continues of an equal bulk to the tail, which is blunt at the end. The colour of the back is cinereous, marked with very small lines composed of minute black specks; the sides are of a reddish cast, and the belly is dusky, but both are maculated like the back. The tongue is broad and forked; the teeth are minute and numerous; and the scales are small. The motion of this reptile is slow; from which circumstance, as well as from the smallness of its eyes, its names are derived; some calling it the slow, and others the Blind-Worm. Like all the rest of the kind in our climates, they lie torpid during the winter, being sometimes found in vast numbers twisted together. This animal resembles the viper in bringing forth its young alive.

Dr. Borlase, who mentions a variety of this serpent with a pointed tail, tells us, that he was informed that a man lost his life by the bite of one in Oxfordshire. It is probable, however, that the informant mistook the black, or dusky viper, for this kind; for it does not appear that any other reptile in this country can communicate poison by its bite. In Sweden, indeed, there is a small reddish serpent, called the asping, the *coluber chersæa* of Linnæus, the bite of which is said to be mortal: and it is possible that this species, though yet unnoticed by our naturalists, is to be met with in some parts of Britain; and that its bite may be attributed to the Blind-Worm.

BLOOD-HOUND. A species of the canine genus which was highly esteemed by our ancestors, who employed it in recovering such game as had either escaped from the hunters in a wounded state, or had been killed and stolen out of the forest. The faculty of smelling in this creature was very remarkable: it traced the lost animal by the blood it had spilt; and, with the utmost certainty, discovered

the robber, whose footsteps it traced through secret and impervious paths at the greatest distance, nor ever desisted from the pursuit till it had overtaken him.

During the civil wars in Scotland, Blood-Hounds were employed on various occasions; and the poetical historians of those two heroes, Bruce and Wallace, frequently relate very curious anecdotes respecting the services rendered by those animals to their masters, together with their escapes from those of their enemies. They were also much valued on the confines of Scotland and England, where the inhabitants of the marches were continually preying on the herds and flocks of their neighbours. History likewise informs us, that King James VI. of Scotland, before he ascended the English throne, made use of these sagacious animals in discovering a race of Cannibals and robbers which had long infested the county of Fife; and, sheltered in a dark cave of considerable extent on the sea-coast, had eluded the vigilance of the neighbouring inhabitants for many years.

The genuine Blood-Hound breed was large, strong, muscular, broad-chested, of a stern aspect, of a deep tawny colour, and generally marked with a black spot over each eye. This species, however, seems now to be entirely blended with the terrier and harrier; and the stock is consequently lost.

BLOWING-SNAKE. A name given by the natives of Virginia to a species of serpent very much resembling the European viper, but considerably larger, and very remarkable for inflating and extending the surface of its head before it inflicts its bite.

BLUE-BIRD. This beautiful animal, as described by Bellonius, entirely resembles the black bird, except in its colour. It inhabits the Alps, and always selects the most craggy rocks and most stupendous precipices for its retreat. Being very rarely caught, it is highly esteemed even in those countries where it breeds; but still more so when carried into foreign lands. It not only sings most delightfully, but is capable of being taught to speak articulately; and is so extremely docile and observant, that, if waked during the night-time by any of the family to which it is accustomed, it will speak and whistle at the word of command. About the beginning of winter, its colour becomes black, and changes again to its original hue on the first approach of spring.

The Blue-Birds build their nests in deep holes in very high and inaccessible solitudes; thereby removing them not only from the reach of man, but also hiding them with surprising art from the chamois and other wild beasts which might annoy their young.

Fowlers are said to catch these beautiful birds in the following manner. Having discovered where they build their nests, they take with them strong stilts, or stakes, such as the climbers of rocks make use of to assist them in their ascent; by means of which they mount such places as indifferent spectators would think impossible to be ascended; at the same time covering their heads, in order to ward off any danger from the falling of pebbles or stones above them. At length, having arrived at the nests with extreme toil and labour, they draw them up from the holes in which they are usually buried, and cherish the young with an assiduity equal to the pains they take in obtaining them.

The Blue-Bird, for the most part, produces five young;

young; it rarely visits the champain country; flies swifter than a blackbird, and subsists on the same kind of food.

BLUE-BIRD, RED-BELLIED. This bird is a native of Surinam. The bill is slender, sharp-pointed, of a moderate length, and of a dark lead-colour; the head, neck, breast, wings, tail, and the superior part of the back, are of a purplish blue, partly very bright, and partly obscure; but the sides of the head, the breast, and the coverts of the wings, are the brightest parts. The upper part of the neck, and the back, are of a dull dirty blue, with a slight tinge of green: from the inferior part of the bill, a little way down the throat, it is of a dark blue, or dirty colour; the quills and tail-feathers are of a black or dusky colour, the edges of the feathers being blue. The lower part of the back is of a light colour, with a faint mixture of rose; the covert-feathers of the tail are of a fine blue purple; the thighs, lower belly, and coverts under the tail, are of a dirty reddish orange; and the legs, feet, and claws, are of a dark lead-colour.

BLUE-CAP. A species of fish of the salmon kind, distinguished by broad blue spots on their heads, from whence they receive their name. They are supposed to breed on some foreign coast; but appear in our rivers at certain seasons, and particularly after a very violent north wind, when they are generally found in shoals.

BOA. An aquatic serpent of prodigious magnitude, which follows after herds of oxen, and from that circumstance receives its name. It sucks the teats of the cow; and, in the belly of one of these creatures, killed during the reign of the Emperor Claudius, a child is said to have been found almost entire. The bite of the Boa is said to be attended with immediate inflammation.

In the Linnæan system, Boa is a genus of serpents, with abdominal and subcaudal scuta, and without a rattle.

BOAR. The male of the hog kind.

BOAR, WILD. This animal, which is the original of all the varieties of the hog kind, is neither so stupid nor so filthy as that which is commonly reduced to tameness. The body is much smaller than that of the tame hog; the snout is longer, and the ears, which are black, are rounder and shorter. The Wild Boar does not vary in its colour like the domestic kind, being always of an iron-grey, inclining to black. The feet and tail are entirely black; the tusks are larger than those of the common hog, some of them, as Buffon asserts, having been found almost a foot long; these tusks grow both from the upper and under jaw, bending upwards in a circular direction, and being exceedingly sharp at the points. The whole litter of pigs follows the sow the three first years; and the family live in one common herd, uniting their forces against the wolf, or other beasts of prey: but no sooner is the Wild Boar arrived at a state of maturity, than it becomes conscious of its own strength, and traverses the forest undaunted and alone; it has then no apprehensions from any single enemy, disdains to fly even from man himself, nor ever discovers the smallest degree of fear.

The Wild Boar inhabits most parts of Europe, except the British Isles and the countries north of the Baltic. It is found in Asia, from Syria to the borders of the Lake Baikal; and, in Africa, on the coast of Barbary. But in the forests of South America these animals roam in prodigious droves, and are extremely beneficial to that country, by clearing

it of rattle-snakes, which they devour with safety. They subsist chiefly on roots and vegetables; and being satisfied with such provisions as can be procured without danger, they seldom attack any other animals: but if any creature happens to die in the forest, or is so wounded as to be rendered incapable of making resistance, it soon becomes the prey of the Wild Boar; for that creature never refuses animal food, however putrid, if it can be procured without difficulty; and, barring accidents, it generally lives to the age of twenty-five or thirty years. The rutting-time of the female is in December, and continues for about three weeks.

The general places of rest of these animals are among the thickest bushes which they can find. In April and May they sleep more sound than during any other months of the year, and are therefore then caught in toils with more facility than at any other season.

The Wild Boar, among huntsmen, has several names, according to its different ages: the first year, it is called a pig of the faunder; the second, a hog; the third, a hog-steer; and the fourth, a Boar.

Hunting Wild Boars is a very favourite diversion among the nobility of those countries which they inhabit; and the best season for this purpose is between the months of September and December. For this purpose small mastiffs are generally used; the hunters being regardless of the acuteness of their smell, as the Wild Boar leaves so strong a scent, that it is impossible for them to mistake his course. When the Boar is driven from his covert, he proceeds slowly and regularly, at a small distance, before his pursuers, without betraying any strong indications of fear. Once in about half a mile, he turns round, stops till the hounds come up to him, and then offers them battle. The dogs, sensible of their adversary's strength, keep off, and bay him at a distance. After gazing on each other for some time, the Boar proceeds leisurely on its course, and the dogs renew the pursuit. The chase is thus continued till the creature, being quite weary, refuses to proceed. The dogs then attempt to close in upon it; and those which are young, and unaccustomed to the chase, being generally foremost in the attack, are commonly killed. The old experienced hounds wait till the hunters come up, who strike at the Boar with their spears, and soon dispatch, or at least disable it. Great caution, however, is necessary in aiming their blows; for this animal is extremely adroit at transfixing them on his snout, or tusks; and, on being only partially wounded, attacks the huntsman in a very furious manner. The most vulnerable parts of the animal are either between the eyes, or the shoulders; in both which places the wound, if driven home sufficiently, proves mortal. When the Boar makes at the hunter, his safety consists entirely in his courage and address; for, if he flies, he is inevitably overtaken, and destroyed. If the beast attacks him in a straight direction, it is to be received at the point of the spear; but if it makes doubles and windings, it is to be watched very cautiously, for it will attempt to catch the spear in its mouth, in which case nothing can save the combatant but another person's attacking the Boar behind.

The modern way of Boar-hunting, is to dispatch the creature by contriving that all the hunters strike at the same instant. But the ancient Roman method was for a person on foot, armed with a spear,

spear, to keep the creature at bay; and in this situation the Boar would spontaneously run against the spear, in order to get at it's assailant, and thus be pierced and slain.

It is very remarkable, that the Wild Boar, in the West Indies, is subject to the stone; and it is not uncommon to find a considerable number in the same bladder, though they seldom exceed the weight of a scruple. Among physicians, the bladder of this animal has been reputed a specific for the epilepsy. It's tusks have likewise been esteemed efficacious in quinsies and pleurifies; but on what principle we are not competent to determine.

The Wild Boar was formerly a native of Britain, as appears from the *Leges Wallicæ* of Hoel Dda, who permitted his grand huntsman to chase that animal from the beginning of November to the middle of December. William the Conqueror punished with the loss of their eyes such persons as were convicted of killing either the Wild Boar, the stag, or the roe-buck. Fitz Stephens informs us, that the vast forest which, in his time, lay on the north side of London, was the retreat of stags, fallow-deer, Wild Boars, and bulls. And Charles I. turned out Wild Boars in the New Forest; but they were entirely destroyed during the succeeding interval of civil dissension.

BOAROLA, or BOARINA. A very small bird described by Aldrovandus; and which appears to be of the same species with the muscicapa, or fly-catcher.

BOAT-BILL. This bird, which appears to be of the same genus with the tamatia of Marcgrave, inhabits Brazil, Guiana, and other parts of South America; and is about the size of a crow. The bill is broad, depressed, sharp-pointed, and carinated; the forehead is white; the top of the head, the hind part of the neck, and the beginning of the back, are black; the rest of the back, wings, and tail, of a light cinereous colour; the neck is white on the under side; and the belly and vent are brightly ferruginous.

BOAT-FLY. An aquatic insect, the back of which is shaped like the bottom of a boat; and the hind legs, which are thrice as long as the fore, aptly enough resemble a pair of oars. Mousset affirms that this animal, contrary to most others of the insect tribe, possesses the faculty of swimming on it's back.

BOCA. A species of the sparus. See **BOGA.**

BOCAMOLLE. An appellation given by some naturalists to a very large Brazilian fish, more usually distinguished by the name of pira-jurumbeca.

BOCAQUE. This animal, which frequents the banks of the Nieper, has some resemblance to a rabbit. It has four teeth, two in the upper, and two in the under jaw; and the fur is of the colour of that of a badger. It burrows in the earth like a rabbit, from October to the end of April, when it traverses the fields in search of winter provisions, it's principal subsistence being dry grass and hay. This animal, when domesticated, becomes very tame, and is capable of learning a number of antic tricks: it is very cunning, and keeps one of it's own fraternity always on the watch while it feeds; the centinel making a whistling kind of noise, to apprize the other of any danger.

In Carolina, animals of this kind have obtained the name of hares; and they principally frequent marshes and meadow-grounds. The females conceal their young from the males, after the same

manner as European rabbits. When one of them is started and pursued, it takes shelter in some hollow tree; but the hunters drive it from thence, by making a fire below. On the isthmus of Darien, they are as large as English hares, but destitute of tails; their ears are small and short; their claws are long; and they commonly lodge about the roots of trees. Labat informs us, that there are several sorts in the Brazils; and that the flesh of all of them is very sweet, and more juicy than that of animals of the hare kind in Britain.

BOCCA. An appellation given by some naturalists to the fish more commonly known by the name of the uranoscopus, or star-gazer. It is a species of the trachinus; and is distinguished from the other kinds by having a great number of beards on the lower jaw.

BODIANO. An American fish of the size of a perch, having a purple back, and yellow belly and sides. It is more commonly known among naturalists under the name of pudiano.

BODTY. A species of American snake of the amphibæna kind, called also ibijara.

BOGA. A fish caught in the Mediterranean sea, called boops by most authors, and evidently a species of the sparus. It is about a span long, and of a slender, roundish figure; the scales are pretty large, and of a yellowish olive colour; the lateral lines are dark and broad; and beneath them on each side are four golden parallel lines, of a silver colour, running from the head to the tail: the eyes are disproportionably large, whence the name of boop, or ox-eye; the irides are of a silvery hue; and the mouth, which is of a middling size, is furnished with very small teeth. There are several species of this fish.

BOICININGA. A Brazilian term for the rattle-snake.

BOIGUACU. A Brazilian serpent, called colrade veadó by the Portuguese, and supposed to be the largest of all the reptile tribe. Borritius asserts, that he preserved the skin of one of them which he had himself killed, and found it to be twelve yards long; and farther avers, that a serpent of this kind was killed in the island of Java, which was thirteen yards and a half long, and that it's belly contained an entire boar: and De Laet assures us that, in the Rio de la Plata, there are some of them so very large, as to swallow a whole stag. This formidable animal is thickest in the middle of the body, and grows shorter and smaller towards the head and tail. On the middle of the back, there is a chain of small black spots which runs the whole length of the animal; on each side there are large round black spots, at some distance from each other, with a white spot in their centre; and between these, near the belly, there are two rows of lesser black spots, which run parallel to the back. It has a double row of sharp teeth in each jaw, of a whitish colour, and shining, like mother-of-pearl: the head is broad; over the eyes there are two prominences; and near the extremity of the tail there are two claws, which resemble those of birds.

These serpents lie hid in thickets, from whence they fall out unperceived; and, raising themselves erect on their tails, attack man and beast indiscriminately. When exasperated, they make a loud hissing noise; and sometimes ascend trees, from which they dart down on travellers, and twist themselves so closely round their bodies, that they dispatch them in an instant. Condamine, however, asserts, that their bite is not dangerous; for though

their teeth are so large as to inspire the beholders with terror, the wounds they inflict are not attended with any fatal consequences. Others affirm, that they haunt desert places; and that though they are sometimes seen near great towns, or on the banks of contiguous rivers, they make their appearance only after some great inundation; that they never saw any but such as were dead; and that they appeared to them like the trunks of large trees lying on the ground.

BOIOBI. An American serpent, called by the Portuguese cobra de evrd. It is about an ell long; of the thickness of a man's thumb; and of a very beautiful shining green. Its mouth is very large; and its tongue is black. It seems to have a predilection for houses; and never injures any creature unless provoked or hurt; but, when either of these is the case, it will bite, and its poison is then very fatal. The natives use the root caa-apia bruised, and taken in water, as an antidote against the infection.

BOIQUIRA. A name sometimes given by the natives of America to the rattle-snake.

BOITIAPO. A Brazilian serpent, called by the Portuguese cobra de cipo. It grows to the length of seven or eight feet; and its body is as thick as a man's arm, round, and pointed towards the tail like a shoemaker's awl. It is covered with very fine scales of a triangular form, and of an olive and yellowish colour. It lives on frogs, and other small reptiles. Its bite is dangerous; but it is supposed that its flesh might be effectually used, like that of the viper, as an alexipharmic and purifier of the blood.

BOLINTHOS. The Aristotelian name for the bonafus, the monop of Ælian.

BOM. An American serpent, remarkable for the noise it makes, which sounds like the word used for its name. It grows to a very considerable size; and does not seem to possess any noxious qualities.

BOMARIN. A name given by some naturalists to the hippopotamus, or river-horse.

BOMBARDIER. A species of insect, called also buprestis; the wings of which are inclosed in a kind of case that entirely enfolds them. It conceals itself among stones; and seems to make little use of its wings, moving by a kind of spring; but, when touched, makes a noise resembling the discharge of a musquet in miniature, during which a blue smoke seems to be emitted from its anus; and by slightly scratching its back with a pin, it may be made to play off its little artillery at any time. Rolander, who first made these observations on the insect, informs us, that it is capable of giving twenty discharges successively; that a vesicle, placed near the anus, seems to be the arsenal from whence it derives its store; that this provision and furniture constitute its chief defence; and that the smoke emitted by it appears to be entirely inoffensive, and can only operate, either in intimidating its enemies, or concealing its own flight.

BOMBINA. A species of the rana, belonging to the order of reptiles.

BOMBYLIUS. The classical name for the humble-bee; of which Ray, in his history of insects, mentions no fewer than nineteen species, wholly different from each other. In the Linnæan system, it is a genus of the order of dip-tera.

BOMBY LOPHAGES. The humble-bee-eater. A fly of the tipula genus, larger and stronger than the common kinds, and extremely

fond of honey; but, being ignorant of the method of extracting it from flowers, it seizes on the humble-bee, and destroys it, in order to come at its honey-bag. The body is of a blackish colour; the head is of a bright red; and the eyes are very large and prominent. It is chiefly found in mountainous places.

BOMBYLUS TEREDO. The name of a species of humble-bee, which eats its way into wood, and there forms its nest.

BOMBYX. The classical name for the silk-worm.

Bombyx is also applied by some authors to express a species of winged insects armed with a sting like that of the bee. It is shaped like a wasp, but is entirely black; and it inflicts a very severe wound with its sting, which it always loses in the act. It builds its nest of clay, which it works up into a very hard consistence, and fastens to a stone. It seems to be a species of the mason-bee.

BONANA-BIRD, LITTLE. This bird is a native of those countries where Bonana-trees commonly grow; and from thence receives its name. The body is about five inches long, and the tail an inch and a half; the bill is only one-third of an inch long, thick, and roundish; the head is large in proportion to the body; and its breadth, when the wings are extended, is nine inches. The feet are black, and armed with sharp black claws; the feathers on the back, as far as the tail, are downy, and of a deep blue colour; the breast is a lightish blue; the tips of the feathers on the belly are yellow; and the wings and tail are of a dark blue with a greenish cast.

BONANA-BIRD, LESSER. The bill of this bird is pretty thick towards the head, with a slight incurvation downwards, and sharp at the point, being of a dusky or blackish colour, except at the base of the lower chap, where it has a fleshy appearance; and is also surrounded with black feathers, which are very narrow on the head, but reach down to the eyes, and an inch deep on the throat. The head, and part of the neck, are of a greenish yellow or olive colour; and the whole body, both above and beneath, as well as the thighs, and the upper and under coverts of the tail, are of a fine vivid yellow; the lesser coverts of the wings, both internally and externally, are also yellow; but the row of covert-feathers immediately above the wings are mostly white on their exterior webs, forming a white space in the middle of the wings: the quills are black, except three or four of those next the back, the exterior webs of which are edged with black. Among the lesser coverts of the wings, near the bend, there is a little mixture of black; and the insides of the quills are of a dark ash-colour. The tail is composed of twelve black feathers of an equal length, the middle ones being the longest, and shortening gradually towards the sides.

This bird, which is a native of Jamaica, was brought from that island by Dr. Brown. It builds a long hanging nest, composed of the interior hair of a sort of moss, or herb, called old man's beard, which it carefully interweaves from the farther extremities of twigs of high trees, in the shape of a sack; and in these it lays its eggs, to preserve them from snakes and monkeys. A nest of this kind, brought from Jamaica, had the appearance, at first sight, of being constructed with horse-hair.

BONASIA. A species of the tetrao.

BONASUS. This animal, which the generality of naturalists confound with the bison, is evidently

dently a species of the cow-kind, and probably differs from the common breed rather by local than natural causes. The Bonafus is a very thick and bulky creature, and furnished with a mane like that of a horse. It is somewhat larger than our bull; the horns do not exceed a span in length, and are so turned as to be incapable of inflicting a wound; the nostrils are wide; and the ears are long and broad. The colour of the animal is a deep tawny, except that the forehead and the breast are white; and the mane is of a darker colour than the rest of the body. Like others of this kind, it has no teeth in the upper jaw before; the tail is short in proportion to the rest of the body; and the legs are covered with hair. It bellows loudly, like an ox; and, when pursued, does not attempt to defend itself with it's horns, but kicks, and discharges it's dung against it's adversary, which is pretended to be of a hot and corrosive nature on such occasions, though not so at other times; a circumstance scarcely credible, says Ray, if there were not instances of other animals possessing a similar faculty.

BONITO. This fish, to which some naturalists give the name of bonettoe, is about three feet long, and two in circumference. It is often seen in company with the albicore, a fish nearly resembling itself, and frequently mistaken for the same. The Bonito has a sharp head; a small mouth; large gills; full silvery eyes; and a tail like a half moon. It has no scales, except on the middle of the sides, where a line of a gold colour runs from the head to the tail. It is greenish on the back and sides; but it's belly shines like silver. It has seven fins; two on the back, two at the gills, a pair on the belly just below the gills, and one on the middle of the belly opposite the largest on the back: from the last on the back proceeds one very small and narrow, reaching to the tail; and another extends from the last on the belly to the tail in like manner.

BONT-VISCH. A Dutch appellation for an East Indian fish, which seems to approach to the nature of the European turdus, except that it is destitute of scales.

BOOBY, COMMON. This bird is generally found about the West Indian shores, and in several parts of the East. The Jamaica Booby is described by Sir Hans Sloane under the title of *avis fusca, anseri bassano affinis*. It feeds upon fish, diving under water after them; but is often robbed of it's prey by the voracious albatross or man-of-war bird: and the frequent contests between these two birds are extremely diverting; the former shewing as great reluctance to part with it's prey, as the latter is resolute in plundering the former. This species of Booby is shaped like a raven; the upper parts are of a greenish brown; the belly is white; and the feet resemble those of the duck tribe.

BOOBY OF NEW GUINEA. This species, which was first described by Sonnerat in his Voyage to New Guinea, is about three feet long. The head, the neck, and the fore part and top of the breast, are black; the back is of a blueish grey; the belly and legs are covered with white feathers; the wings are streaked with longitudinal lines alternately black, and of a greyish white colour; and the feathers which cover them are short, serrated, and arranged like scales. On each side of the head rises a bar, which is large and rounded at it's beginning, and of a deep yellow colour; after which it grows narrow, and more pale, till it approaches the belly, when it

spreads itself over all it's upper part. The feet are black, and scaly; and the bill is long, rounded, prominent, and incurvated at it's extremity; of a black colour two-thirds of it's length from the base, and yellowish from thence to the point.

BOOBY, WHITE-COLLARED. This bird is likewise a native of New Guinea; and is about a foot and a half in length. The head, throat, hind part of the neck, sides, back, wings, and tail, are black; the fore part of the neck, the breast, belly, and legs, are white; and feathers of the same colour form a semicircle round the lower part of the neck, which being contrasted with the surrounding black, has a very pleasing effect. The eye is surrounded with a naked membrane, of a blood-red colour; and the bill, the feet, and the irides, are black.

BOOBY, PAPOU. This species, according to Sonnerat, is about two feet long. The head and neck are greyish inclining to black; on the top of the head behind, there is a semicircular white bar; the back and tail are black; the wings are black in the middle, the exterior borders being grey, and the interior white; the breast, belly, and legs, are white; the irides are yellow; and the feet and bill are of a reddish hue.

This bird is a native of New Guinea, and receives it's name from the Papoos, a people inhabiting that and the neighbouring isles; who, being seldom visited by navigators, are of course very little known.

BOOK-WORM. An insect of the moth-kind, which is bred from eggs deposited in books about the month of August, and afterwards becomes a fly. It pretty nearly resembles the mite, or blatta, found in corn; and when the time of it's transformation approaches, it eats it's way through, in order to breathe a freer air.

Various expedients have been adopted for counteracting the depredations of this noxious animal; but the best, and indeed the only security to books, is derived from mineral salts, to which every species of insects shews a strong aversion. For this purpose, book-binders ought to mix the salt known by the name of *arcanum duplicatum*, alum, and vitriol, with the paste used in binding; and by this precaution books may be perfectly freed from all the damages occasioned by this mischievous insect.

Mr. Prediger, in his Instructions to German Book-binders, printed at Leipzig in 1741, recommends the making paste of starch instead of flour; and the powdering slightly the books, their covers, and the shelves on which they stand, with a mixture of pulverized allum and fine pepper; and is also of opinion that, in the months of March, July, and September, books should be rubbed with a woollen cloth steeped in powdered allum.

BOOPS. A small fish commonly caught in the Mediterranean sea, about five inches in length, and remarkable for the largeness of it's eyes. It is of a rounded shape, has large scales, and is deemed a species of the sparus. But, besides this common Boops, there are two other varieties: the one, commonly called *bouge-ravel*, is nearly about the size of the Boops; and the other kind is small, being no more than three inches long, and destitute of scales. It's mouth is small; and it's eyes are extremely large.

Boops is also a name sometimes used to express a species of whale.

BOOR-WORM. A name given by some zoologists to the *solon lignorum*, a sea-worm which perforates the bottoms of ships.

BORBOTHA.

BORBOTHIA. A name sometimes applied to the *mustella fluviatilis*, or eel-pout. See **GADUS**.

BOS, the Ox. This animal, in the Linnæan system of zoology, is a genus of quadrupeds of the order of pecora; the characters of which are, that the horns are hollow, turned forward, bent like crescents, and smooth on the surface; the fore-teeth are eight in number; and there are no canine teeth. Of this genus, besides the common tame species, there are four naturally wild; the bison, the bonafus, the bubulus, and the urus.

BOS GRUNNIENS, or GRUNTING Ox. This is a species of Ox with a mane on it's neck, the whole body covered with long hair, a haunched back, and a tail like that of the horse. It seems to be a native of the country of the Calmucs; and derives it's name from the noise it makes, which resembles that of a hog.

BOS INDICUS, or INDIAN Ox. This is another variety, having a large prominence on the shoulders, and short horns bending close to the neck, in some species; but almost erect, and bending a little forward, in others.

In Surat there is found a small species not larger than a mastiff-dog, but having a fierce countenance, and generally employed by the natives in drawing their children in carts.

BOSCHAS. A name sometimes used to express the *anas torquata minor*, or smaller ring-duck.

BOTABOTA. A name for that species of sea-swallow, the nests of which are so famous in China, as well as in some parts of Europe, for making soups. These nests, which are composed of a delicious viscous substance, are esteemed restorative, and provocative; and for this last quality they are held by the eastern nations in the highest repute.

BOTATRISSO. An appellation given by Bellonius, Gesner, and other naturalists, to that species of the gadus called by some *lota*, and *mustella fluviatilis*; in English, the eel-pout. It is distinguished from the other gadi by having two fins on the back; and by the two jaws being of equal lengths with beards at the mouth.

BOTAURUS. A classical name for the bird known among Europeans by the title of the butter-bump, bittern, or mire-drum.

BOTOE. A beautiful bird of the parrot kind, very common in the Philippine Isles; being somewhat smaller than the common parrot, and entirely of a fine deep blue colour.

BOTTLE-NOSE. A name common in some counties of England for the *anas arctica* Clusii.

BOTTS. A species of worms which infest horses and other cattle. This name is also applied to a sort of grubs which destroy the grass in bowling-greens.

BOUGE RAVEL. A species of the boops, caught in the Mediterranean Sea. The nose is long and pointed; the back is of a reddish blue; the tail is red; the belly is of a fine silvery white; and the whole body is shorter and broader than that of the common kind of boops.

BOUNCE. A provincial name for a species of the squalus, distinguished by Artedi by the name of the reddish variegated squalus, with the pinna ani in the middle space between the anus and the tail. This fish is called *scymnos* and *scylius* by ancient naturalists, and *catulus major* by the modern ones.

BOUTAEL. An East Indian fish of the lam-

prey kind; called also *neegen oogen*; and by Ray, *lampetra Indica*. It is found in lakes, ponds, and other standing waters; and is very wholesome and well-tasted. It's general description, however, indicates it to be rather of the *mustella* than the *lampetra* kind; but if, as it's name expresses, it has several apertures for the gills, it is absolutely a new genus of fish.

BOUVIERA. A name given by some naturalists to a small, broad, and flat fresh-water fish, more usually called *bubulca*.

BOYEUEPECANGA. A very large and remarkably thick serpent, distinguished by this name on account of certain prominencies on it's back. The poison of this reptile is reckoned highly deleterious.

BOYUNA. An American serpent, of a long and slender shape, and entirely of a black colour. It's smell, which resembles that of a fox, is so very strong, as to be almost intolerable.

Boyuna is likewise the name of a Ceylonese snake, so very harmless, that it is a favourite animal among the natives, who consider the meeting it as a propitious omen.

BRACHIONUS. A genus of animalcules of the anthrodia kind, containing all the wheel animals.

BRACHURI. A name given by Dr. Hill to a genus of animalcules of the tailed kind. They are of a roundish figure; their tails are shorter than their bodies; and their skins are perfectly smooth, thin, and colourless. They are frequently found in ponds, in peppermint-water, and in many other infusions of vegetable substances.

BRACHYPTERA. The name of a genus of birds of the class of hawks, distinguished by the shortness of their wings. This appellation is derived from *Brachus*, Short; and *Pteron*, a Wing.

Hawks of this genus have such short wings, that, when folded, they do not nearly reach to the end of their tails. Of this genus are the goshawk, the sparrow-hawk, and the different species of the butcher-bird.

BRADYPUS. A Linnæan genus of quadruped called *anthropomorpha*; by some naturalists termed *ignavus*; and, in English, the sloth. It's characters are, that the mouth is destitute of fore-teeth; the canine teeth are obtuse, and longer than the grinders, of which there are five on each side; the body is covered with hair; the feet have no great toes, and are formed for climbing; and on the breast there are two paps. There are only two known species of this genus: the one is called the American sloth, with a short tail, and three toes on each foot; and the other is named the Ceylon sloth, with only two toes on each foot, and no tail.

BRAMBLING. This bird, which is sometimes called the mountain-finch, and at others the sea-lark, is larger than the chaffinch, and belongs to the sparrow class of aves. The top of the head is of a glossy black colour, slightly edged with a yellow brown; the back feathers are of the same colours, except that their edges are more deeply bordered with brown; the chin, throat, and breast, are orange; the lesser coverts of the wings are of the same colour, but those incumbent on the quill-feathers are barred with black tipped with orange; the interior coverts at the bases of the wings are of a fine yellow; the quill-feathers are dusky, but their exterior sides are edged with yellow; the tail is slightly forked; the exterior web of the outermost feather

feather is white; and the others are black, except the two middle ones, which are edged and tipped with ash-colour.

BRAMBLING, or MOUNTAIN FINCH OF LINNÆUS. This species seems to be quite different from the former. The male is black above, and the edges of the feathers are irregularly tinged with a dark iron colour; the belly is white; the breast and exterior bases of the wings are of a gold colour, but the interior bases are of a deep yellow. The prime feathers of the wings are black, their outer edges being white; and four of these feathers, as well as those which follow towards the bases, are externally half white and half black. The principal feathers on the tail towards the outside are black; but, between them, there are several which are white on their external sides towards their bases.

The female Brambling is brown in those places where the male is white, and cinereous where he is of a deep yellow. Under the bases of the wings, she is of a beautiful yellow; under the vent, of an irregular yellow; and the prime-feathers of the wings and tail are of the same colour with those of the male.

BRANCHIOSTEGI. A term expressive of one of the general classes of fishes; the characters of which are, that the rays of the fins are of a bony substance, but they have no bones, or ossicula, at the branchiæ, as all the malacopterygious and acanthopterygious fishes have. The above term is derived from Branchia, Gills; and Osteon, a Bone.

BRANDARIS. A species of the Strombus, in the order of testacea.

BRAND-HERRING. A kind of herring, so called by the Dutch.

BRANLIN. A species of fish of the salmon kind, called in some parts of England the fingery; which name it obtained from five or six transverse black streaks on each side, having the appearance of the impression of so many fingers, and each marked with a single red spot. The tail of this fish is forked like that of the salmon; and it has been supposed by some that they are all of the male kind. They seem to impregnate the spawn of the common salmon; and are found in waters of so rapid a current, that scarcely any other species of fish could live in them. Willughby, however, observes, that they never attain to any considerable size.

BRASEM. A name by which some naturalists have called an American fish of the smaris kind, more commonly known by its Brazilian name, acaropeba.

BREAM. A river fish of the leather-mouthed kind, reckoned a species of carp, and called by the generality of naturalists cyprinus latus. It is found in lakes, and in the deepest parts of still rivers. The body is extremely deep and thin in proportion to its length; the back is much elevated, and very sharp at the top; the head and mouth are small; and, during the spring, the animal is sometimes covered with abundance of minute whitish tubercles. The scales are very large, and the sides are flat and thin. The dorsal fin has eleven rays, the second of which is the longest; and that fin, as well as all the rest, are of a dusky colour. The back is of the same hue; the sides are yellowish; and the tail, which is remarkably large, represents a crescent. The flesh of the Bream is very little esteemed, being extremely insipid to the taste.

BREAM, SEA. A fish of the sparus kind, found

in the seas near Surinam, and growing to the length of three or four feet. The eyes are large; and the snout, belly, fins, and tail, are of a pale red colour. It is caught among the rocks in deep water; and its flesh is very agreeable food.

BREEZE-FLY. See *CESTRUM*, and *GAD-FLY*.

BRENT GOOSE. A fowl of the goose kind, in many respects resembling the barnacle, but of inferior size. The bill is an inch and a half long; the colour of which, as well as the head, neck, and superior part of the breast, is black; and on each side of the slenderest part of the neck there is a white spot: the lower part of the breast, the scapulars, and coverts of the wings, are ash-coloured, clouded with a deeper shade; the feathers, both above and below the tail, are white; and the tail, the quill-feathers, and the legs, are black.

The Brent Geese frequent the coasts of the British Isles in winter. They feed on a sort of long water-grass; but prefer the roots, and those parts of the stalks immediately above them, which they dive for, bite off, and leave the upper parts to drive with the tide. In Ireland they are extremely numerous; particularly near Londonderry, Belfast, and Wexford, where they are taken in nets placed across the rivers. Their flesh is much admired for its delicacy.

The rat, or road-goose, of Willughby, agrees in so many respects with the Brent Goose, that it is probably no other than the young bird not full-feathered; the only difference consisting in the feathers next the bill, and those on the throat and breast, being brown. However, Willughby, Ray, and Buffon, very properly describe the barnacle and the Brent Goose as two different species; while Linnæus, in his *Fauna Suecica*, makes them synonymous, and describes the true barnacle as the female of the white-fronted wild-goose.

BRESILIA. A species of tanagra, in the order of passerines.

BRESMA. A name given by several authors to the bream, a species of cyprinus.

BRET. A provincial appellation of the common turbot.

BRICK. A species of lamprey, called *lampetræ medium* genus, and distinguished from the other lampreys by a number of very long and narrow black transverse spots.

BRISSIDES. A genus of the echini marini; the distinguishing characters of which are, that their figure is oval; their backs are striated; and their rays are smooth. There are two known species of this genus: the one is flat, and called by some the cranium; and the other, called the amygdala, is high, and usually found fossil immersed in flint.

BRISUS. Another genus of the echini marini; the characteristics of which are, that they are of an oval figure, and have the aperture of the anus situated on one side of the superficies. Their backs are smooth and even; but, on the vertex, they have several very elegant crenated and dotted lines. The base appears as if cut off on the extremity nearest the mouth; and is not flat, as in the spatangi, but raised after the manner of a cushion.

BROAD-WORM, or LUMBRICUS LATUS OF LINNÆUS. A name given to the tænia, or tape-worm.

BROCADE-SHELL. An appellation given to a species of the cylindrus. It is of a silvery colour, variegated with brown.

BROCK. A term used by sportsmen to express a badger; and also to denote a hart in it's third year.

BRONCINI. A name given by some naturalists to the lupus, or sea-wolf; called, in English, the wrasse.

BRUTE. In the Linnæan system, the second order of mammalia; the characters of which are, that they have no upper or under fore-teeth; their feet are armed with strong hoofs; they are not formed for swift or stately motion; and they masticate their food. This order comprehends six genera, and seventeen species.

BUBALINUS SERPENS. This serpent, the anaconda of the Ceylonefe, is a very formidable reptile, and extremely destructive to cattle; from which circumstance it receives both it's classical and Indian name.

BUBALUS. A species of wild bull, supposed by modern naturalists to be the same with the bison and urus.

BUBO. See OWL.

BUBULCA. A fresh-water fish, called by some naturalists bouvieria and petense. It is small, flat, and extremely short; rather of a circular than an oblong shape; and of a fine silvery white colour.

BUCA. A name sometimes given to the buccinum.

BUCAO. A species of screech-owl very common in the Philippine Isles. It grows to the size of a peacock, and is a very beautiful bird; but it's nocturnal scream is as hideous as can well be conceived.

BUCARDIUM. A name given by some conchologists to a kind of heart-shell, so called from it's fancied resemblance to an ox's heart. It is of the genus of cordiformes, or heart-shells; and differs from other kinds in being more globular.

The cabinets of the curious afford us seven species of this shell; namely, a yellow furrowed one; a grey spinose one; a white furrowed one; a thicker narrow one; a thick one, with a cardo separated from the apex; a thick kind, with the cardo at the apex; and the bastard Noah's ark.

BUCCEPHALUS, or MOSCHEPHALUS. This animal, which is of the size of a hind, is of a shape between the hind and the heifer; and approaches pretty near to the gazelle tribe, of which it appears to be a variety. The head, legs, and hoofs, are long and slender; the tail, which is a foot long, resembles that of a cow; the head is of a reddish colour; and the horns are black, smooth at their tops, and rough below. This animal has two udders; and is very mild, tractable, and sportive.

BUCCINA. A family of shells, called whelks in English; the general characters of which are, that their mouths are an oblong, or very lengthened, oval; the upper parts of which are produced or lengthened into gutters or slight beaks.

The immense quantities of species this family contains, as well as their numerous subordinate characters, have produced such perplexity and confusion among conchologists, as can scarcely be unravelled.

According to the accurate Da Costa, the family of Buccina, or whelks, may be divided into the six following genera:

BUCCINA CANALICULATA, vel Buccina rostro canaliculato. Guttered whelks, or those whelks the upper parts of whose mouths terminate nearly in straight and somewhat prolonged gutters.

BUCCINA RECURVIROSTRA, vel Buccina ore

quasi abscisso, canaliculo recurvo; Buccina plagio-stoma. Wry-mouthed whelks; or those whose mouths are, as it were, cut short at their tops; for the gutters or beaks do not extend straight forward from the superior parts of their mouths, but bend or fall on their backs in a wry manner, exactly like the mouths of soles and other flat fish.

BUCCINA ROSTRATA, vel cum rostro longissimo. Beaked whelks; or those which have very long beaks, such as the crane, the spindle, the purpuræ, and others.

BUCCINA UMBILICATA. Umbilicated whelks; or such as have an umbilicus or perpendicular hollow, or navel, along-side the columella or pillar-lip, on the first or body whirl.

BUCCINA COLUMELLA DENTATA, vel Plicata. Whelks with wrinkled or plaited pillars; and in these the columella, or pillar-lip, is wrinkled, ridged, or worked with plaits.

BUCCINA, STROMBI, or needles, having very long and taper clavicles or turbans, and wry-mouths turning on their backs, in some species of such lengths as to resemble spurs.

In the Linnæan system, the Buccina form a distinct genus of the univalve and spiral testacea. Those species most usually met with on the coasts of the British Isles are the brown, massy, waved, striated, reticulated, and small Buccina. The inclosed animal is a slug.

BUCCO. A genus of birds of the order of picæ.

BUCEROS. A species of raven found in the East Indies, Tartary, and China. The head, neck, rump, and tail, are of a fine glossy black, without the least intermixture of any other colour. It is about the size of a full-grown pullet; the head is disproportionably large; and the beak has a considerable gibbosity towards the base, rising above the rest of the surface.

BUCEROS likewise forms a genus of birds of the order of picæ in the Linnæan system. The beak is convex, and bent backwards; the upper chap is longer than the under; the nostrils are situated near the base of the beak; the tongue is acute and short; and the feet are formed for walking. Of these birds there are four distinct species.

BUCK. The male of the fallow-deer, the female of which is denominated a doe.

A Buck, the first year, is called a fawn; the second, a pricket; the third, a forel; the fourth, a fore; the fifth, a Buck of the first head; and the sixth, a great Buck. See DEER.

The term Buck is likewise applied to the males of the hare and rabbit kind.

BUDHURS. The Irish name for a large species of trout externally resembling the red gillaroo.

BUFFALO. An animal of the cow-kind, between which and the common ox there is a very striking similitude. They are equally submissive to the yoke, frequently live under the same roof, and are employed in the same domestic services. Their figures are so nearly alike, that it requires some degree of attention to be able to distinguish them; and yet (as Buffon observes) no two animals can be more distinct, or appear to have a stronger aversion to each other: and were there only one of each kind, it is probable that the race of both would soon be extinct. Certain, however, it is, that the antipathy of these two animals is so great, that the cow will not breed with the Buffalo, which it so greatly resembles; though it will with the bison, to which animal it has in shape but a very distant similitude.

The

The Buffalo is by no means so beautiful a creature as the cow. It's figure is more clumsy and awkward; it's air is more wild, and it carries it's head nearer the ground; it's limbs are not so fleshy, nor is it's tail so well covered with hair. It's body is shorter and thicker; it's legs are higher; it's head is smaller; it's horns are compressed, one side being sharp, and a tuft of hair hanging down between them; it's skin is also harder, thicker, blacker, and more destitute of hair; and it's flesh, which is hard and blackish, is not only disagreeable to the taste, but also to the smell. The milk of the female, though produced in great abundance, is by no means so good as that of the cow. However, in warm climates, the greatest part of the butter and cheese is made of the milk of the Buffalo. The veal of the Buffalo is scarcely better food than the beef; and, in short, it's hide, which is well known for it's softness, thickness, and impenetrability, is the most valuable production of that creature.

Buffaloes possess a very considerable degree of strength; and are accordingly employed in agriculture, and in drawing and carrying burdens, being guided by rings thrust through their noses: and it is said that two of them, when yoked together, are capable of drawing more than four strong horses.

From the size of the Buffalo, (in which it is inferior only to the elephant, the rhinoceros, or the hippopotamus) it may naturally be concluded, that it is a native of the warmer climates; and accordingly we find this animal wild in many parts of India, and also tame wherever the natives have occasion for it's services. Wild Buffaloes are very formidable animals; sometimes goring travellers to death, and afterwards trampling on and mangling their bodies in a shocking manner: however, they are less to be dreaded in the woods than in the plains; because, from the violence of their pursuit, their large horns are frequently entangled in the branches of trees, so that sufficient time is afforded the traveller to make his escape. There is, indeed, scarcely any other probability of avoiding them: for they are extremely swift; and such excellent swimmers, that they cross the largest rivers with the greatest facility. Like all other animals of the torrid zone, they are very fond of the water; and, even in the midst of their pursuits, frequently plunge into that element, for the purpose of cooling themselves.

The negroes of Guinea, as well as the Indians of Malabar, (in which countries there are vast numbers of Buffaloes) greatly delight in hunting and destroying them. They never attempt to face these animals; but usually climb trees, from whence they shoot at them; nor do they venture to descend till they have effectually dispatched them. However, when tamed, no animals can be more patient and humble, nor go through domestic drudgeries with greater perseverance.

Though Buffaloes are chiefly found in the torrid zone, they are nevertheless bred in several parts of Europe; particularly in Italy, into which country they were introduced during the reign of Agilulf, King of the Lombards, between the years 591 and 616. They are said to be found wild in Apulia; and to be very common, in hot weather, on the sea-shore between Manfredonia and Barletta. They grow to an enormous size, being twice the size of our largest oxen; from which circumstance they are by some called taurelephants.

In the British Museum there is a pair of horns, probably of this kind; one of which is six feet six

inches and a half long, and it's cavity is capable of containing five quarts of water: but Lobo mentions some which were sufficiently capacious to contain near three gallons.

Aristotle describes these animals, with abundant precision, under the appellation of wild oxen, among the arachotæ; notwithstanding which, Belon and Buffon affirm, that they were totally unknown to that philosopher.

The female Buffaloes, like cows, produce but one at a time. But they are very different in their periods of gestation: the cow is well known to go but nine months; whereas the Buffalo goes twelve. The Buffalo, indeed, forms a distinct kind, and never mixes with the cow, the bison, or the urus: it manifests a strong aversion to the former; and, when feeding in the same pasture, always keeps apart; and produces a separate race in every quarter of the globe where it is found.

All Buffaloes are extremely fearful of fire; and, perhaps, in consequence, have an aversion to red colours. In general, they are inoffensive animals, if undisturbed; but, when wounded, or even fired at, their fury becomes ungovernable: they then turn up the ground with their fore-feet; bellow more loudly, as well as more terribly, than the bull; and pursue the objects of their resentment with determined fury. It is, however, remarkable, that though their horns are so very formidable, they in general employ their feet more in combat, and endeavour to trample their enemies to death.

There are various species of the Buffalo; but naturalists have so confounded them with the bonafus, bison, and urus, that it is extremely difficult to refer them to their proper classes.

BUFFALO, MUSK. The horns of this species are closely united at their bases, bending inwards and downwards, and turning outwards at their extremities; and are about two feet long, and very sharp at their points. The head and body are wholly covered with very long silky hairs of a dark colour; and the flesh smells strong of musk. This animal is found about Churchill River, in Hudson's Bay, and the river of Seals. It seldom exceeds the deer in height, but is excessively nimble. The breed, however, may be traced in different parts of the continent of America.

A part of this species has likewise been discovered in the north of Asia, near the mouth of the Oby, in a fossil state; but whether the animal is a native of any part of the Asiatic continent, or was only carried thither by chance, has not yet been sufficiently investigated.

BUFFALO, CAPE. The length of this species is eight feet, and it's height five and a half; the body is thick, and the limbs clumsy and strong. The horns are large at their bases, bend outwards, and then suddenly turn inwards; their length along the curve is one foot nine inches; and their distance, from tip to tip, is eight inches and a half. The face is covered with long rough black hair; the chin, the under-side of the neck, and the dew-lap, are surrounded with long hanging coarse hair of the same colour; and from the horns, along the top of the neck, to the middle of the back, there is a long loose black mane. The body is covered with short dark cinereous hair; the base of the tail is cinereous, and almost naked; and the rest is covered with long black hair.

Some of these animals grow to a much larger size than that we have described, as is evident from a pair of horns in the Leverian Museum; the length

length of which, along the curvature, is three feet and upwards; and, between tip and tip, one foot six inches.

These Buffaloes inhabit the interior parts of Africa north of the Cape of Good Hope, but it does not appear that they extend to the north of the tropic. They far exceed the largest English ox in magnitude; their heads hang down; and they have a very fierce and malicious aspect. They lie in ambush in woods, and other secret places; and, rushing suddenly on passengers, trample them, their horses, and oxen of draught, under their feet; so that they are dreaded as some of the most formidable beasts of this country; and they will even return to the attack, and lick the mangled bodies. Their swiftness is prodigious; and they are so strong, that one only three years of age having been placed, for an experiment, with six tame oxen in a waggon, could not be moved from the spot by their united exertions.

This species likewise abounds in the interior parts of Guinea; but they are so fierce and malevolent, that the negroes who pursue other savage animals are fearful of molesting them. The lion, which is able to break the back of the strongest domestic ox at one blow, is unable to master this creature, unless by leaping on its back, and suffocating it by fixing its talons about its nose and mouth. The lion, indeed, often perishes in the attempt, but not without leaving the marks of its fury about the mouth and nose of the Buffalo. The flesh is coarse, but juicy, and has a strong flavour of venison: it is much esteemed in those countries where these animals are found; but it probably derives some share of its relish from the difficulty attending its attainment.

The Cape Buffaloes are gregarious; and generally retire, during the day, into the thickest forests. They are called aurochs by the Dutch settlers; but differ totally from the European Buffaloes, approaching so nearly in species to the last kind, that they may be considered merely as a variety. The warmth of the climate has prevented the vast length and abundance of hair which distinguishes the former; and the luxuriance of the herbage has given them the vast superiority of size.

However, another species of aurochs has been mentioned by the Dutch travellers; who say that it resembles the common ox, but is larger, and of a grey colour; that its head is small, and its horns are short; that the hair on the breast is curled; that it has a beard like a goat; and that it is so swift, that the Namacques call it baas, or the master-courier.

BUFFALO, DWARF. The horns of this species recede in the middle, and almost meet at the points, standing erect. Its body is larger than that of a roebuck, and less than a stag's; it is compact and well-made in all its limbs: the hair is shining, and of a tawny brown; the legs are short; the neck is thick; the shoulders are a little elevated; and the tail is terminated with coarse long hairs.

Belon met with this species at Cairo; but says that it was brought from Azafi, a province of Morocco situated on the ocean.

BUFFALO, LITTLE INDIAN. This animal grows to the size of a calf six months old; and resembles the English bull in shape, except that it has very short horns, and a bunch rising on the back between the shoulders. In the East Indies these Buffaloes are used for drawing coaches, instead of horses. The nose is broad, flat, and destitute of hair; on the lips,

or muzzle, there are some loose, shaggy, straggling hairs; and the hair on the inside of the nose is whitish. The horns, which are small, and of a dark colour, appear but a little way above the rough hair on the top of the head; the ears are much longer and larger than the horns, being of a flesh colour, and internally destitute of hair; the body is wholly covered with sleek hair; that on the head, neck, tail, back, and sides, being of a blueish colour. The loose skin on the neck is white; and the belly is covered with so small a quantity of lightish hair, that it shews the flesh colour. The legs are of a light colour, spotted and marked with black, and become gradually whiter towards the feet. The tuft of hair at the extremity of the tail is black; and the hoofs, which are shaped like those of the cow, are of a dark brown.

BUFFON BIRD. An African bird to which the French give the title of demoiselle, or lady, on account of its elegant gesticulations; but its proper name is the Numidian crane, though it is best known by the designation we have adopted. It possesses the greatest peculiarity of manners; it stops, rises, lifts one wing, then another, turns round, sails forward, then backward; all which motions afford high diversion to the ignorant, who never consider that these contortions are only the awkward expressions of the animal's fears. This bird is very scarce, even in those countries where it breeds. The plumage is of a leaden grey colour; but it is distinguished by fine white feathers, consisting of long fibres, which fall from the back of the head about four inches long; while the fore-part of the neck is adorned with black plumage, composed of very fine, soft, and long fibres, hanging down on the breast, which give the bird a very graceful appearance.

BUFO. A name frequently applied to express the toad, denominated by others rubeta.

BUG. A very nauseous insect, which intrudes on the retreats of mankind, and is of all others the most troublesome and noxious. When the weary retire to rest, the bug issues from its retreat, and commences its depredations. By day it lurks in the most secret parts of the bed; takes the advantage of every chink and cranny to make a secure lodgement; and contrives its habitation with so much art, that scarcely any industry can detect it. It seems to avoid the light with great cunning; and even if candles be kept burning, it is fearful of issuing from its hiding-place; but no sooner does darkness promise security, than it crawls out from some corner of the bed, and travels with great assiduity to attack its victim, whom it pesters with unceasing cruelty.

Nor are these animals less disagreeable from their nauseous stench than their voracious appetites. When they begin to crawl, the whole bed is infected with the smell; but if they are accidentally killed, it becomes insupportable. These are some of the inconveniences resulting from the persecution of these odious insects; but, happily for Great Britain, they multiply less in these islands than in any part of the continent. In France and Italy the beds, particularly in the inns, swarm with them; and every piece of furniture seems to afford them a retreat: they also grow to a larger size in those countries than with us, and bite with more severity.

If minutely examined, this animal will be found to consist of three principal parts; the head, the corselet, and the belly. It has two small brown eyes,

eyes, a little prominent; besides two feelers with three joints, underneath which there is a crooked trunk, it's instrument of annoyance, and which, when in motion, lies close upon the breast. The breast is a kind of ring, in which are placed the first pair of legs. The belly consists of nine rings, under which are placed two more pairs of legs; each leg has three joints; and the feet are armed with crooked claws, resembling hooks. The body is smooth, except a few short hairs about the vent, and on the two last rings, which may be seen through a microscope. It's motion is slow and unwieldy; but it's sight is so exquisite, that, the moment it perceives the light, it generally makes good it's retreat, and is seldom caught, though the bed may swarm with the breed.

If internally examined, we shall find the great artery, which in all insects performs the functions of the heart; we shall likewise discover the aperture of the lungs, on the right side and on the left, through which the animal breathes; and we shall find a stomach and intestines running from the mouth to the anus. If the insect has fasted for any considerable time, it's body will contain a mucus like the white of an egg; but, if crushed after a full meal, the human blood which it has drained will appear a little darkened by having passed through it's body.

The parts of generation in these animals are sufficiently obvious; they are often found coupling tail to tail, and in that state are very easily destroyed. The female has an ovary filled with eggs, joined together like a bunch of grapes; each egg being oblong, almost cylindrical, inclining to white, and pretty transparent. In about two days after impregnation by the male, she deposits her eggs, to the number of an hundred and fifty, in some convenient place where they are likely to remain undisturbed: there they continue for some months; during which time, neither heat nor cold, moisture nor fumigation, can in the least retard their exclusion; but they come forth active, and endowed with the noxious qualities of the species. This hardness of the shell seems to continue the breed, which might otherwise be annihilated, as the old ones die every winter, or are easily destroyed by a fumigation used for that purpose: but the eggs seem incapable of destruction; and even those who profess to kill these nauseous insects, though they may answer for the parent, can never make certain of the egg.

The manner of destroying Bugs, notwithstanding the various prescriptions which have been published, and the nostrums which have been applied by individuals, seems rather the effect of assiduity than of antidote. Cleanliness is the most effectual preventative, and that alone will tend to exterminate them. They are, however, of themselves, an effectual antidote against other species of vermin, particularly fleas, which they never fail to destroy.

Linnaeus enumerates about forty species of Bugs, to which he gives the general name of *cimex*.

BUG, ACOLALAN. An insect resembling the common Bug, but less nauseous in it's smell. It is very small; and, when full grown, begins to assume wings. It is extremely mischievous among cloaths, where it often commits it's depredations unperceived.

BUG, CATERPILLAR. A name given by Bonnet to a small species of caterpillar which smells exactly like a Bug. This, however, is not the only

species which yields a sensible smell; for there is one of the middle-sized, smooth kinds, which, at the time of it's change into the chrysalis state, emits a very pleasant rose-like scent; and their exuviae retain that smell for years together. There is also another which smells strongly of musk.

BUG, GREEN AND YELLOW. This insect is about the size of the common fly. The body is of an oval shape, considerably depressed, and black on the upper part; the feelers are slender, and of a greenish colour; the head, the breast, and the external wings, are of a bright green, but somewhat rough; and the belly is also green. The snout has four joints; within it is a bristly tongue; and a yellow margin, or rim, surrounds the whole. This insect is commonly found in kitchen-gardens.

BUG, NARROW WATER, or BOAT-FLY. This insect is nearly an inch long, and the sixth of an inch broad. The head is blunt and yellow; the eyes are brown; the breast is large, and of a yellow colour, but somewhat transparent; the shield is black, with a gloss like velvet; the external wings are of a yellowish grey, spotted with black round the edges; the interior wings are whitish and transparent; the fore-feet are shorter than those in the middle, and the hinder ones are much longer than either. The snout is long, and sharp-pointed; the feelers are very short, consisting only of two joints; and the belly is black and hairy.

BUG, COMPRESSED WATER, or BOAT-FLY. This species is nearly an inch long, and somewhat broader and more depressed than the former. The head and legs are yellow; the breast and the external wings are brown, with many fine slender transverse streaks of pale yellow; the under part of the body is yellowish; and the eyes are black.

BUG, GREY WATER, or BOAT-FLY. This insect is extremely minute, being less by one half than a common louse, and entirely of a whitish grey colour. The back is depressed, with a line running along the middle; the fore-legs are remarkably short; the feelers are also very short; but the hind-legs are long.

There are several other species of the Water Bug: the most remarkable of which are, the Black Water Bug of the East Indies; the Black and White Smaller Water Bug; the Broader Brown Water Bug; and the Little Yellowish-streaked Water Bug.

BUG, PLANT, or CHERMES. The snout of this animal is placed on it's breast; the hinder part of the belly is pointed; there are four wings on the sides; and the feet are adapted for leaping. Linnaeus has enumerated eight species; namely, those of the elm, maple, beech, alder, fir, willow, ash, and nettle. Besides these, he mentions another, which is supposed to breed in the head of the cerastes, or horned serpent.

BUG, FIR-TREE. This species is of an oblong figure, and of a whitish colour. They have small heads; and pretty large prominent eyes of a brown hue, with a small black speck between them. The feelers are very small; there is a sort of down near the tail; and the wings are thin and whitish. When concealed in the leaves of the fir-tree, they make a prominence resembling a strawberry.

BUG, GRASS. This is a pretty large insect, considering it's kind. The body is a little depressed and broad; the head is very obtuse; the breast is grey, and variegated with white lines; and the feelers are white, except at their tops, where they assume a blackish appearance. This creature pretty much

resembles a grasshopper, or rather a cricket, except that the wings are not cruciated. Exclusive of these, naturalists notice the Apple-tree Bug, and the Germander Bug; and probably there are particular species belonging to many other trees.

BUG, OBLONG DUNG. Linnæus describes this Bug as a cimex with a crooked trunk, having feelers like hairs at the ends, and an oblong black body. It feeds on flies, and other insects; and is furnished with six feet, the hindmost of which are very long, clavated, and thick near the claws. It is covered with filth; of which, however, it can easily divest itself, and so change it's appearance as to deceive the eye of the spectator. It is shaped somewhat like a spider; and has a hairy furrowed body, of an ash colour, which appears like earth when it is dry. The head and feelers are destitute of hair, except the last joint of the feelers; and the trunk is crooked, and incurvated.

BUG, GREEN STOVE. This insect, which is of a flat oval shape, and a greenish colour, firmly adheres to the bark or leaves of trees. The back is a little prominent; the belly is hollowed, the fore-part being blunt, and the hind forked. So little does it resemble an animal externally, that it was long taken for an excrescence on the plant on which it was found. It appears in a kind of shell, or covering, which incloses the body of the insect. It is furnished with six very slender legs; the eyes are small and black; and the feelers are very slender. This animal possesses the faculty of thrusting out it's legs at pleasure, and sometimes moves slowly about; however, it generally adheres to the leaf of the tree, continuing in the same place, and extracting the juice. The male is a small fly, much inferior in size to the female: it has a slender oblong body, and long legs; the feelers are short; and the wings are white. The female is commonly found on orange and lemon-trees preserved in stoves in green-houses; and is probably the same with the coccus of the citron-tree, or the shielded louse of Linnæus.

BUGEE. A very scarce species of monkey sometimes imported from India, it's native country, into England, and publicly exhibited. It is about the size of a beaver, and nearly of the same colour; but it's tail and claws prove it to be wholly of the monkey kind.

BUGELUGEY. A large species of lizard, called by Clusius, and some other naturalists, by the indeterminate name of *lacertus Indicus*. It grows to the enormous length of four feet, and measures nine inches round. The tail is very long, and terminates in an extremely slender point.

BUGLOSSUS. A name often applied to the foal-fish.

BULIN. A species of sea-snail.

BULL. The male of the cow kind. See Cow, Ox.

BULLA. A genus of univalve shells; whose general characters are, that the shell is sub-oval, that the aperture is oblong and smooth, and that one end is a little convoluted.

BULLA, WOOD. This shell is of an oval figure, transversely striated. It is narrower at the one end than the other, and a little umbilicated. The colour is dirty, and resembles some sorts of wood, whence the trivial name. The whole length of the shell is about two inches.

BULLA, OBTUSE. The shell of this species is very brittle, and more obtuse at the end; and the inner side folds over the columella, so as to render it invisible.

BULLA, CYLINDRIC. This species is white, of a cylindric figure, a little umbilicated at the end, and about twice the size of a grain of wheat.

BULLA, OPEN. One end of this shell is produced, and fusiform; and the aperture is very wide.

The word *Bulla* also signifies a genus of worms of the order of testacea.

BULLCARD. An English name for the *alauda non cristata* of Rondeletius; a small sea-fish caught on the Cornish coasts, and near the Isle of Anglesey; called by Pennant the smooth blenny.

BULL-DOG. One of the most fierce and strong of the canine race, having the nose short, and the under-jaw longer than the upper. The breed is in a manner peculiar to England; but, ever since the savage custom of bull-baiting has happily been on the decline, it has suffered neglect. Such is the strength and ferocity of these animals, that four of them have been known to master a lion; and when they are turned loose on a bull, and have once properly seized him, nothing short of the loss of life, or the giving way of the part, can disengage them. While that barbarous amusement continued in vogue, various instances of savage fortitude have occurred in the feats of this breed, which would scarcely be credited in countries where the diversions are more rational and elegant.

BULL-FINCH. A well-known bird of the sparrow kind, the wild note of which is destitute of melody: but, when tamed, it becomes remarkably docile; and maybe taught any tune by means of a pipe, or to whistle any notes in the truest manner, and seldom forgets it's acquirements. It soon becomes so very tame, as to attend it's master's call, perch on his shoulder, and go through it's musical lessons at command. It may even be taught to speak: and some of these birds, thus instructed, are annually imported from Germany.

The Bull-Finch is about the size of a common sparrow: the bill is strong, short, black, and crooked like that of a parrot; the tongue is likewise short; the eyes are of a hazel colour; the head is large in proportion to the body; the breast is crimson, as well as the jaws and the throat; but the top of the head, and the sides of the bill, are of a fine shining black. Part of the neck, the shoulders, and back, are of a blueish ash-colour, shaded with red; and the belly and rump are white. The exterior webs of some of the quill-feathers are red, and the interior of a fine glossy black; others are black with dusky edges, and of a blueish gloss; and some again have their exterior edges white, forming a kind of white transverse bar on each wing. The tail is two inches long, and of a shining black; the legs are of a dusky colour; and the claws are black. The male is distinguished by the superior blackness of his crown, and by the rich crimson which adorns his breast, cheeks, and throat; while those of the female are of a dirty colour. However, they are with difficulty distinguished when young; but, by plucking a few feathers from the breast when the bird is about three weeks old, in ten days time the secret may be discovered; the growing nascent plumage appearing of a fine crimson, if a cock; but of a palish brown, if a hen.

Bull-Finches delight to feed on the buds of fruit-trees, such as the apple, pear, and peach; but as they always select the blowing buds, they are extremely noxious to gardeners; and are accordingly destroyed as often as they can be met with in the act of plundering.

These

These birds breed very late in the spring, the young ones being seldom hatched before the middle of June. They usually form their nests either in gardens, orchards, parks, or other places which abound with trees; and conceal them with a considerable degree of address. The hen lays four or five eggs, of a blueish colour, and sprinkled at their largest ends with large dark spots of a brown or reddish hue. If the young are intended to be secured, they must not be removed before they are twelve or fourteen days old. They should then be kept very warm and clean, and fed sparingly every two hours from morning till night. Their food must be rape-feed, soaked in clean water eight or ten hours, and then scalded and bruised; after which it should be mixed with an equal quantity of white bread, soaked in water, strained, and afterwards boiled thick with milk. This preparation should be made fresh every day; but when they are able to feed themselves, they must be weaned from their soft meat as soon as possible, and then fed with rape and canary seeds. If they happen to be indisposed, a blade of saffron should be put into their water; and, while young, they should be accustomed to the sound of such notes as they are intended to learn, which they will readily acquire.

BULL-FINCH, BRAZILIAN. This species is about the size of the lark, and has a straight bill. The whole head, the throat, and the lower and middle part of the neck, are of a fine blood-colour; the back is grey, mixed with black feathers; the upper part of the bill is brown, the lower being of a light carnation; the legs are cinereous; the wings and tail are a mixture of black and grey; and the eyes have blueish pupils.

BULL-FINCH, GREATER, OF EDWARDS. The bill of this species, which seems to be a native of some part of America, is pretty thick towards the base, slightly arched on the upper part, terminating in a point, and entirely of a whitish colour. The top and sides of the head, the upper part of the neck, the back, the wings, and the tail, are of a dark brown colour inclining to black, the feathers being edged with a lighter brown, which forms a very agreeable mixture. The throat, the under side of the neck, the breast, and the belly, are of a very fine scarlet colour; the superior parts of the wings, and a little way down their ridges, are of the same colour as the breast; the insides of the wings are dusky; the thighs, the lower belly, and the covert-feathers under the tail, are of a black brown colour; the tail is pretty short in proportion to the size of the bird; the legs, the feet, and the claws, are of a light brown; and there are four toes on each foot.

BULL-FINCH, LITTLE BROWN. This curious little bird has a white bill. The top and sides of the head, the upper part of the neck, the back, the wings, and the tail, are of a dark brown colour; the borders of the feathers are somewhat lighter than their centres; the insides of the wings are of a light brown; the throat, the under side of the neck, the breast, the belly, the thighs, and the covert-feathers under the tail, are of a dull reddish orange; and the legs, the feet, and the claws, are of a dull brown.

BULL-FINCH, NORTH AMERICAN, THE GREATEST OF EDWARDS. This beautiful bird is seven inches long. The shape of the bill, and the colour of the breast, are like those of the common Bull-Finch; the upper chap is black, arched, and

somewhat longer than the lower; and the lower is of a reddish flesh-colour, except the point, which is black. The head, the throat, the breast, and the rump, are scarlet; and from the nostrils to the eyes on each side there runs a blackish line. The feathers on the hinder part of the neck and back are black, tipped with scarlet; the wings are black; the greater quill-feathers next the back are tipped and bordered with white, forming two oblique white bars across each wing; the lesser coverts of the wings are a little fringed with red; the belly and thighs are of a light ash-colour; the tail is black above, but inclining to cinereous beneath; and the legs are of a blackish brown.

BULL-FROG. This very singular animal is a native of Carolina, and derives its name from its bellowing exactly like a bull, which excites the admiration of strangers. Catesby informs us, that it is of a deep brown colour, having a great number of dark spots mixed with others of a greenish red; and that it grows to a very large size. The eyes are brown; the irides are yellow; and under the eyes there are two round ears covered with thin membranes.

BULL-HEAD, or MILLER'S THUMB. This fish is only four or five inches long. The head is of a roundish shape, large, broad, and depressed; and the gill-fins are round, and beautifully notched at their circumference. At the rise of the covert of the gills on each side there is a crooked prickle. The mouth is large, and full of small teeth; the back is yellow, with three or four black stripes; the belly is whitish; and the body is destitute of scales. The haunts of this fish are in clear and gravelly brooks and rivers, under stones, or in holes. It bites at a small red worm all the summer season; and is so remarkably stupid, that whatever number may be together, the most inexperienced angler may catch them all. When young, it forms a desirable bait for trout. The spawning-time is in April.

BULL-HEAD, ARMED. This fish, to which some naturalists give the name of the pogge, is very common on the British coasts. It seldom exceeds five inches and a half in length, and but rarely attains to that size. The head is large, bony, and very rugged; the extremity of the nose is armed with four short upright spines; and on the throat there appear a number of short white beards. The teeth are very minute; the body is octagonal, and covered with a number of strong bony crusts, divided into several compartments, the ends of which project into sharp points, and form several echinated lines along the back and sides. The first dorsal fin consists of six spiny rays; the second, which consists of seven soft ones, is placed just behind the first; and the pectoral fins, which are broad and rounded, are composed of fifteen rays.

BULL-TROUT, called also the Sea-Trout. This species, like the salmon, migrates up several of the British rivers, spawns, and then revisits the sea. The body, which is thicker than that of the common Trout, weighs upwards of three pounds; the irides are silvery; the head is thick, smooth, and dusky, with a gloss of blue and green; the back is plain, and of the same colour, but becomes more faint towards the side line; and the sides, as far as the lateral line, are marked with large, distinct, irregular black spots: the lateral line is straight; the sides beneath the line, and the belly, are white; and the tail is broad, and even at the end.

end. The dorsal fin consists of twelve rays, the pectoral of fourteen, the ventral of nine, and the anal of ten. The flesh assumes a pale red colour when boiled, but is extremely well flavoured. This fish seems to be the scurff of Willughby.

BUNSING, or STINK-BUNSING. An animal peculiar to the Cape of Good Hope, which the Dutch affirm to be the most nauseous in nature. It is of the size of a middling dog, and resembles a ferret in shape. When closely pursued either by men or beasts, it suffers them to approach pretty near, and then discharges such an intolerable stench from it's posteriors, that it almost overpowers those who cannot immediately get beyond it's effect: and dogs, or other animals, when in pursuit of the Bunsing, are so affected with it, that they instantly turn aside, and rub their noses against the stumps of trees, or any thing else which is likely to destroy the smell.

The Dutch sometimes kill these animals; but suffer them to remain on the spot where they fall, because no person can endure to carry them off. When any of their filth happens to daub a person's cloaths, or is even touched with the point of the finger, the smell is with the utmost difficulty removed, though every expedient be used for that purpose.

The name of this animal, in English, signifies a stinking badger. Pere Xuchelli mentions a species of this creature that is found in Brazil, and which possesses the same nauseous qualities, though in an inferior degree.

BUNTING. The English name of the *emberiza alba*, called by some naturalists *calandra*, *cenchrasmus*, *alaudæ* congener, and *strozzello*, or *strollozzo*. The general characters of the family are, that the bill is strong and conic, the sides of each mandible bending inwards; and in the roof of the upper one there is a hard knob, with which nature has furnished these animals for the purpose of breaking and comminuting hard seeds, or other substances.

BUNTING, COMMON. This bird is a constant inhabitant of Great Britain; and, towards the approach of winter, associates in flocks. It's bill is singularly constructed: the sides of the upper mandible form a sharp angle, bending inwards towards the lower; and in the roof of the former there is a hard knob, for the purpose of bruising it's food. The throat, breast, sides, and belly, are of a yellowish white; the head, and the upper part of the body, are of a pale brown, tinged with olive; each of which, except the belly, are marked with oblong black spots; but, towards the rump, these spots become more faint. The quill-feathers are dusky, their exterior edges being of a pale yellow; the tail is a little forked, of a dusky hue, and edged with white; and the legs are of a pale yellow.

BUNTING, YELLOW. The bill of this species is of a dusky hue; the crown of the head is of a pleasant pale yellow, in some almost plain, and in others spotted with brown; the hind part of the neck is tinged with green; the chin and throat are yellow; the breast is marked with orange red; the belly is yellow; the lesser coverts of the wings are green, the others being dusky, and edged with rust-colour; the back is of the same colours; the rump is of a rusty red; the quill-feathers are dusky, their exterior sides being edged with yellowish green; the tail is a little forked; the middle feathers are brown, the two middle-

most being edged on both sides with green, but the others on their exterior edges only.

The female of this species builds a large flat nest on the ground with moss, dried roots, and horse-hair, interwoven; and lays six eggs of a white colour, veined with a dark purple. It is one of our most common birds; and in winter frequents farm-yards with other small birds.

BUNTING, REED. This bird shews a predilection for marshy places, and lodges commonly among reeds, from whence it receives it's name. It's nest is contrived with wonderful art, being fastened to four reeds, and suspended by them about three feet above the surface of the water: the cavity of the nest is deep, but narrow; and the materials of which it is constructed consist of rushes, bents, and hairs. It lays four or five eggs, of a blueish white, marked with irregular purplish veins, especially on their larger ends. It is much admired for it's song; and, like the nightingale, cheers the night with it's melody.

The head, chin, and throat, of the male Reed Bunting, are black; the tongue is livid; and at each corner of the mouth there is a white ring, which encircles the head. At the approach of winter the head changes to hoary; but, on the return of spring, it resumes it's former jettynefs. The under side of the body is wholly white; the back, the coverts of the wings, and the scapular feathers, are black, deeply bordered with red; the two middle feathers of the tail are of the same colours; the three next are black; and the exterior web, and part of the interior of the outmost feathers, are white.

The head of the female is rust-coloured, spotted with black: it is destitute of the white ring round the neck; but, in other respects, it resembles the male.

BUNTING, TAWNY. This species is found in different parts of England, but is not very common. Their breeding-place seems yet to be unknown; and, from the circumstance of their sometimes appearing white, are frequently mistaken for white larks. The length of this bird is about six inches and a half, and the breadth twelve inches and upwards. The bill is very short, and yellow, except at the point, which is black. The crown of the head is of a tawny colour; the whole neck is a paler shade of the same colour; the throat is almost white; the upper part of the breast is of a dull yellow; the breast, and entire under-part of the body, are white, dashed with a yellowish tinge; the back and scapular feathers are black, edged with a pale reddish brown; and the rump and covert-feathers of the tail are white on their lower half, and yellow on their upper. The tail is a little forked, and composed of twelve feathers; the three exterior feathers are white; the outmost is marked with a dusky spot on the exterior side; the third is marked with the same colour on both sides of the tip; and the rest of the tail is entirely dusky. The wings, when closed, reach to about the middle of the tail; the colour of the first six quill-feathers is dusky, slightly tipped with a reddish white; their lower parts on both sides are white; and in the seven succeeding feathers the dusky colour gradually gives place to the white, which, in the seventh, occupies the whole feather; the two next are wholly white; the rest of the quill-feathers and the scapulars are black, edged with a pale red; the bastard wing, and the outmost secondary feathers, are of the same colour with the quill-feathers; and the rest, together with the coverts, are entirely white, forming one large bed. The legs, feet,

feet, and claws, are black; and the hind toes are extremely long, like those of the lark, but by no means so straight.

BUNTING, SNOW. In Scotland this species obtains the name of the snow-flake, from their appearance in severe weather, and deep snows. They arrive about that season among the Cheviot Hills, and in the Highlands, in prodigious flocks. A few breed in the latter on the summits of the highest hills, in the same places with the ptarmigans; but the greatest numbers migrate from the remotest north. They appear in the Shetland and Orkney islands; and multitudes of them, being wearied with the length of their voyage, often fall on vessels in the Pentland Frith. Their arrival is a certain indication of approaching bad weather and storms of snow, being driven by the cold from their usual retreats. Their progress southward is probably from Spitzbergen and Greenland, Hudson's Bay, Lapland, Scandinavia, Iceland, the Faro Isles, Shetland, Orkney, Scotland; and the Cheviot Hills. At that season they visit all parts of the northern hemisphere, Prussia, Austria, and Siberia. In Austria they are caught and fed with millet; and, like the ortolan, grow excessively fat. In their flight, they keep very close to each other, mingle together in a very confused manner, and fling themselves collectively into a globular form; and then the fowler makes prodigious havock among them.

This bird weighs no more than an ounce and a half. The bill and legs are black; the forehead and crown are white, with some mixture of black on the hind part of the head; the back is of a full black; the rump is white; the quill-feathers are black, with white bases; and the secondaries are white, with black spots on their interior webs. The inner feathers of the tail are black, the three exterior ones being white, with dusky spots near their ends; and from the chin to the tail is of a delicate white.

BUNTING, MOUNTAIN. This bird is seldom seen in this kingdom; but, according to Johnson, the bill is short, thick, strong, and black at the point, but the rest of it is yellow. The forehead is of a dark chestnut colour; the hind part of the head, and the cheeks, are lighter; the hind part of the neck and the back are cinereous, the latter being spotted with black; the throat is white; and the breast and belly are waved with flame-colour, but grey at the insertion of the wings. The five first feathers are of a blackish brown, the rest being white, with the tips of each dashed with brown. The three exterior feathers of the tail are white, and the rest of a dark brown; the feet are black; and the hind claw is as long again as any of the rest. The breast of the female is of a darker colour than that of the male. This species has sometimes been seen in Yorkshire and Northamptonshire.

BUNTING, GREEN-HEADED. This is a very curious and scarce bird. The bill is brown; the head and neck are of a dull green; the wings, breast, and belly, are a deep brown; the coverts of the wings and the back are a light brown intermixed with black feathers; the tail is brown; and the legs are of a yellowish hue. The breeding-place of this bird is entirely unknown.

BUPHAGA. A genus of the order of picæ, of which one species is found in Senegal.

BUPRESTES. A species of cantharides, which is of an oblong figure, emits a nauseous smell, and bites very severely. It is of the same nature with the common cantharides, or Spanish

fly; and is said to be very noxious to those cattle which, in feeding, happen to swallow it.

In the Linnæan system, they form a genus of insects different from the cantharides; but belonging to the same order of coleoptera, and comprehending several species.

BURACO DE VELTA. The name of a fish caught on the Brazilian shores, usually known among authors by its local name guaibicoara.

BURBARUS. A name given by some ichthyologists to the common carp.

BURBOT. This fish, to which Ray gives the name of *mustela fluviatilis nostratibus*, bears some resemblance to the eel in its body, except that it is shorter and thicker. Its motions also resemble those of the eel; and it is extremely smooth, slimy, and slippery. The head is flat and disagreeable, and shaped like that of a toad; the teeth are very small, but numerous; and the irides are yellow. On the tip of the nose there are two small beards; on the chin there appears another; and the number of branchiostegious rays is seven. The first dorsal fin is short, and the second is placed immediately behind it, extending almost to the tail; the pectoral fins are rounded; the ventral fins consist of six rays; the vent is situated near the centre of the belly; the anal fin reaches almost to the tail; and the tail is rounded at its extremity. The colour of the Burbot varies; some being dusky, and others of a dirty green spotted with black, and often with yellow; the belly, in some, is white, but the real colour is frequently concealed by the slime.

This fish is found in several of the English rivers, and is esteemed very delicate food, though extremely disgusting when alive. It is a very voracious creature, and preys on the fry and smaller fish. In the Lake of Geneva the Burbot is caught in great abundance, and is there called the *lota*. In foreign countries it sometimes weighs six pounds; but in this it seldom exceeds two or three.

BURBOT, THREE-BANDED. This species frequents the rocky shores of the British isles, and is sometimes caught with a bait. It grows to the length of a foot and a half, and weighs upwards of two pounds. The head is large and flat; the eyes are placed near the end of the nose; the body is long, slender, and compressed sideways, especially towards the tail; and at the end of the upper jaw there are two beards, and one on the chin. The teeth, which are numerous and minute, are disposed along the jaws in the shape of a broad plate; and in the roof of the mouth there is a set of small teeth arranged in a triangular form. There are seven branchiostegious rays: the first dorsal fin is lodged deep in a sulcus just beyond the head, and consists of a number of short unconnected rays; and the second rises exactly behind it, and extends nearly to the tail. The pectoral fins are broad and round; the ventral fins are small; the second ray is the longest; the anal fin reaches almost to the tail; and the tail itself is rounded at the extremity. The scales are very small; the body and head are of a reddish yellow colour, marked above the lateral line with large black spots; the back fin and tail are somewhat darker; and the ventral fin is of a brighter red; but all are maculated. The lateral line has a central incurvation, and then proceeds straight to the tail.

BURBOT, FIVE-BEARDED. The ingenious Willughby makes this species only a variety of the former; but succeeding naturalists having ex-

amined several specimens, determine them to be distinct, as the spotted Burbot has never more than three beards, and the brown never less than five. There is also some difference in the form, as well as the colour, this species being thicker in proportion than the former: however, except in these particulars, and the number of the beards, there is a general coincidence in the parts of both. Four of these beards are placed on the upper-jaw, two at the very extremity of the nose, and two a little above them; and on the end of the lower-jaw there is a fifth.

These Burbots are of a deep olive-brown, with whitish bellies; and they grow to nearly the same size as the former. It is said that the Cornish fishermen, when desirous of taking these fish, whistle, and make use of the words *Bod Bod Vean*, as if by that means to facilitate their capture. However whimsical this circumstance may appear, it is certain that the fishermen of other countries make use of some magical terms, as they apprehend, to allure their prey.

BURGAU. A large species of sea-snail, of the lunar or round-mouthed kind. It is very beautifully lined with a coat of the nature of mother-of-pearl, which artificers take out, and use under the name of mother-of-pearl; though some call it *burgaudine*, from the name of the shell from which it is taken.

BURGHER-MASTER. A sea-fowl which has a crooked, yellow, narrow, thick bill, the under mandible being somewhat knobbed at the point. The nostrils are longish; there is a red circle round the eyes; the legs and claws are of a greyish colour, the latter being only three in number; and the former are very little shorter than those of the stork, though the body is almost as large. The tail is broad, and expanded like a fan when in the act of flying. The wings and back are of a purplish colour; but the tips of the wings, and the entire body, are white. It builds its nest very high in the cliffs, or rocks; and is commonly seen on dead whales, feeding on the fat of these animals, where it is easily shot. It likewise preys on lambs, seizing them after the manner of a hawk. Its cry resembles that of a raven. It is a solitary bird; and delights in resting on the water, but does not appear to dive much.

BURN-COW, or BURST-COW. A genus of insects with filiform feelers, having the head half concealed within the breast, and being of a roundish figure.

BURN-COW, YELLOWISH GREEN. This insect is placed by some naturalists among the cantharides, except that it has a more oblong body. The cases of the wings are of a yellowish green, or rather gold colour; the legs are long and thickish; the eyes are globous and prominent; and from the forehead proceed two oblong antennæ, which are articulated. The head is small; the mouth is wide, hard, strong, and forked, being armed with teeth, which it uses with great address; the belly is of a longish figure; and the entire insect is about half an inch long. It will fight with beetles and efts, and wound them in the belly. It feeds on moss and heath, as well as on those weak insects which it vanquishes in fight.

Bellonius says that the Yellowish Green Burn-Cow is a winged insect, having a most offensive smell; that it resembles a cantharides, but is larger; and that it is so extremely venomous, that black cattle which feed in pastures where it abounds, are frequently killed by them.

There is another Burn-Cow, with a shorter body, a broader belly, a sharper tail, a small head with prominent eyes, and a wide forked mouth. The cases of the wings are streaked lengthways; and the colour is a grass green, with a mixture of shining gold. It has eight legs, of a blackish colour, long in proportion to the body, and more slender than in the former species. The antennæ are smaller and more slender; and the smell is infinitely more disagreeable. It lives on flies and palmer-worms; is very injurious to cattle; and some affirm that, when taken internally, its poisonous qualities prove mortal.

In Germany there are two other species; the one of a greenish gold colour, and the other of a yellowish black. The first resembles the yellowish green Burn-Cow, but is somewhat bigger; the cases of the wings are streaked with lines of a deep gold colour, shaded with a little green; and between the lines hollowish tubercles arise, which appear as if engraved. The yellowish black Burn-Cow has the same qualities with the former, except that it is of a different colour, a little bigger, and furnished with four antennæ.

BURN-COW, BROWNISH BRASSY. This species is small; the eyes are very large and prominent; the feelers are short; and the breast is broad, short, hollowed, and slightly marginated. The cases of the wings are very bright and glossy, and finely streaked with very elegant minute specks; the legs are slender and black, as well as the under part of the body; and the snout is prominent. It is commonly found among reeds.

BURN-COW, BRASSY AND CLOUDED, with clavated feelers. This species is scarcely larger than a flea. The belly, and the lowest part of the body, are black; but the upper part is entirely of a brassy yellow, with an admixture of brown; and it has a brown spot on the back which touches both the cases of the wings. The breast is large, and marked with five oblique furrows; the head is almost hid under the breast; and the body grows narrower towards the tail. It does not appear that these two last species are dangerous to cattle.

BURN-COW, VIRGINIAN. This insect is of a dusky, brassy colour, with spots on the wings; and is a pretty large species. The head is almost concealed under the breast; the breast is of a brassy colour, with a mixture of reddish brown; the cases of the wings are also of the same colour, but more slightly tinged with red; they are marked with four or five streaks; and on each there are two bright yellow spots, so disposed as to form a square figure when the cases are closed.

BURREL-FLY. This insect has an oblong body, divided into three principal parts; namely, the head, the shoulders, and the belly; which last has five or six annulations. It is entirely of a whitish colour, inclining to grey; and has a strong, brawny, long snout. In July and August it proves very troublesome to cattle. Mousset gives an account of a horse which, having been tied by a halter to a tree in a wood, was killed in the space of six hours by those voracious insects, which sucked up its blood with great avidity.

Linnaeus gives the name of *tabanus* to this species of flies; of which he mentions two varieties, the common *tabanus*, and the dim-sighted *tabanus*.

Ray mentions one which he calls the beautiful two-winged fly, with large white spots on the wings. It is of the size of the common house-fly; and has a brown head, breast, and body, except that there is a yellowish tincture under the roots of the wings.

wings. The eyes are large, and of a bright lucid green, with a few black specks.

Other authors mention the black tabanus variegated with yellow, and having brown legs; the brown tabanus, with iron-grey sides, and three brown streaks over the eyes; the grey tabanus, with a transverse line over the eyes; the brown tabanus, with grey wings variegated with small white spots, green eyes, and four brown lines running across them; the long-bodied tabanus; the tabanus with a short body and transparent wings; and the black tabanus with transparent wings.

BURROUGH DUCK. A common English appellation for the tadorna.

BUSELAPHUS. An animal of the goat-kind, called also moschelaphus. It is of an intermediate shape between the stag and the ox kind. The head and ears are long; the legs and feet are small; the tail is about a foot long, and shaped like that of a heifer; the hair of the whole body is of a tawney, or reddish yellow colour; and the horns are black, smooth at the tops, but rounded in every other part. It is extremely tame, docile, gentle, fond of play, and swift of foot; and, except in size, resembles the common antelope.

BUSTARD, OTIS. A large bird which, in the Linnæan system, makes a distinct genus of birds of the order of grallæ; the distinguishing characters of which are, that the feet have only three toes each, and those all placed before; that the upper mandible of the bill is arched; that the nostrils are ovated; and that the tongue is bifid.

The Bustard is the largest land-bird that is a native of Britain. It is much larger than the turkey; the male, at a medium, weighing twenty-five pounds. Its breadth is about nine feet, and its length almost four. The male has a tuft of feathers, about five inches long, on each side of the lower mandible; the head and neck are cinereous; the back is barred transversely with black, bright, and rust-colour; the greater quill-feathers are black; the belly is white; the tail, which consists of twenty feathers, is marked with broad bars of red and black; and the legs are of a dusky colour.

The female is about half the size of the male. The crown of the head is of a deep orange colour, traversed with black lines, and the rest of it is brown. The lower part of the neck before is ash-coloured; but, in other respects, it resembles the male, except that the colours of the back and wings are brightest.

This bird was once more numerous than it is at present; but the increased cultivation of the country, and the extreme delicacy of its flesh, have greatly thinned the species. Indeed, it would probably have been long since exterminated, but for its peculiar manner of feeding. Had it continued to seek shelter among our woods, it must have been destroyed in proportion as they were cut down; if in the forest, the fowler might have approached it unobserved; and the bird, from its magnitude, would have afforded such an excellent mark, that it could not easily have been missed. But the Bustard now inhabits only the open and extensive plains; where it is plentifully supplied with food, and where every invader of its repose may be seen at a considerable distance.

These birds are frequently seen in flocks of more than fifty, on the extensive downs of Salisbury Plain; on Newmarket and Royston heaths, in Cambridgeshire; the Dorset uplands; and even as far north as March, or Lothian, in Scotland.

In those diffusive plains where there are neither woods nor hedges to screen the sportsman, the Bustards enjoy a kind of indolent security. Their food is composed of the berries which grow among the heath; and of large earth-worms, which appear in great numbers on the downs before the rising of the sun during the milder months of the year. Thus situated, in vain does the fowler creep forward, in order to approach them; they have always centinels placed on proper eminences, which are incessantly on the watch, and warn the flock of the smallest appearance of danger. However, it sometimes happens that, though these birds cannot be reached by guns, they are run down by greyhounds. As they are voracious and greedy, they often sacrifice their safety to their appetites; and, being generally very fat, they are unable to fly without much preparation. When the greyhounds therefore come within a certain distance, the Bustards run off, flap their wings, and endeavour to gather air enough under them to rise: in the mean time, the hounds are continually gaining ground; and, at last, it is too late for the birds to think of obtaining safety by flight. However, they run very fast; and, when on the wing, can fly several miles without resting.

As there are but few places where Bustards can at once find proper food and security, they generally continue near their old haunts, seldom wandering above twenty or thirty miles from home. As their food is replete with moisture, it enables them to live on those parched plains where there are scarcely any springs of water. But, as a security against drought, Nature has furnished the males with a pouch, the entrance of which lies immediately under the tongue, and which will contain near seven quarts of water; and this they fill, probably in order either to supply the hen when sitting, or the young till they are capable of flying.

Like all other birds of the poultry kind, Bustards change their mates at the season of incubation, which is about the latter end of summer. If the number of males and females is equal, they separate in pairs; but, should the males be most numerous, they fight till reduced to an equality. They build their nests on the ground, by scraping holes in the earth; and sometimes line them with a little straw or grass. They lay only two eggs, which are about the size of those of a goose, and of a pale olive-brown, with dark-coloured spots. They are about five weeks in hatching; and the young ones run about the moment they are emancipated from their shells.

Bustards generally live about fifteen years; but they cannot be propagated in a domestic state, as it is impossible to supply them with a sufficiency of that food in which they principally delight. They assemble in flocks in the month of October, and keep together till April. In winter, as their food becomes more scarce, they support themselves indiscriminately by feeding on moles, mice, and even little birds, when they can seize them. For want of other food, they likewise are contented to live on turnip-leaves, and other succulent vegetables. In some parts of Switzerland, they are found frozen in the fields in severe weather; but, when removed to a warm situation, they generally recover.

BUSTARD, ARABIAN. This bird is about the size of a turkey; but has a longer neck and legs, as well as a more slender body, than the common Bustard.

tard. The bill, which is about three inches and a half long from the extremity to the angles of the mouth, is of a light horn-colour, and a little darkish at the point; the nostrils are long, and placed near the forehead; the eyes are of a dark colour; and the fore-part of the head is white. Above the eyes there is a black line, which terminates in a point towards the forehead backwards; it gradually encreases in breadth, and forms a sort of black crest, from which proceeds a short black line, reaching almost to the hinder part of the eye. The fore part of the neck is cinereous, with small transverse lines of a darker colour; and the hinder part, as well as the back, is brown, with fine transverse blackish lines. The coverts of the wings are of the same colour with the back; the tips of the feathers, which are white, form semi-lunar spots; and the ridge of the wing, in the upper part, is white, from which proceeds a broad white bar, sprinkled with small black spots, separating the covert from the quill-feathers. The bastard-wing is black, except that the feathers have white tips; the foremost of the prime-feathers are black, and the middlemost are spotted with black and white; the inner quills next the back are of the same colour; the breast, belly, thighs, and the entire under-side, are of a pure white; the superior part of the tail is of the same colour with the back, but the exterior webs of the outmost feathers are partly white; the under-side of the tail has a black bar across it, near the tips of the feathers; the legs are pretty long; the toes, which are three in number, are short, and stand forward; the legs are bare of feathers for some space above the knees; both the legs and feet are covered with a scaly skin of a dirty white or lightish brown colour; and the claws are of the same. This bird is a native of Mocha, in Arabia Felix.

BUSTARD, INDIAN. This bird is about twenty inches in height, and is more slender in proportion than any other bird of the kind. The bill is of a whitish colour, and longer than that of the English Bustard; the sides of the head are of a bright brown; but the top of the head, and the whole neck, are covered with black loose hanging feathers. The back, rump, and tail, are of a light brown; but on the latter there are transverse black bars. All the covert-feathers of the wings are white, except the smaller ones about the joint, which are edged with black. The greater wing-feathers nearest the back are brownish, spotted with black; and the middle quills are white, with transverse bars speckled with black. The greater quills are white on their exterior webs, and the tips gradually become of a dark brown ash-colour. The whole of the under-side, from the breast to the tail, is clothed with black feathers. The legs are long, and the toes short; the latter are three in number; and the former are bare a considerable distance above the knee. The toes all point forward, as in other birds of this kind, and are covered with whitish scales; but the claws are dusky.

This bird is an inhabitant of Bengal, in the East Indies; and was first described by Edwards, who took it from a drawing in the possession of Dr. Mead.

BUSTARD, LITTLE. This bird, to which Willughby gives the name of the field-duck, is about the size of a pheasant. The bill is of a flesh colour at the base, and black at the point; the head, the back part of the neck, the back, and the coverts of the wings, are brown, marked with irregular

spots of black; the throat is white; and the fore-part of the neck is of a lightish brown, with a dusky mixture. The covert-feathers on the inside of the wings, and the ridges of the wings, are white; and the outer quills are white at their bottoms, but black at their points. The breast and sides are white, spotted with black; the belly and thighs are wholly white; and the tail-feathers are brown, speckled with very small spots of white, and barred with transverse black lines. It has only three toes, which all stand forward; and the legs and feet are covered with yellow scales.

The Little Bustard has sometimes been found in this island, but is by no means common: it is, however, very plentiful in France. Dr. Shaw, in his Travels to Barbary and the Levant, has given a figure and description of this species, which the Moors call rhaad, or *saf-saf-rhaad*; that name, in their language, denoting thunder; and supposed to have been given to this bird from the noise it makes in springing from the ground, as *saf-saf* very naturally expresses the beating of the air when it is got on the wing.

BUTCHER-BIRD. The English name of the *lanius*, called also the shrike, the smallest of all the European birds of prey, yet very fierce and destructive.

The greater Butcher-Bird is only about the size of a blackbird. Its bill, which is black, is about an inch long, and hooked at the end; to which mark, together with its carnivorous appetite, it is indebted for being ranked among rapacious birds: but its slender legs and feet, and its toes, which are formed differently from those of other birds of prey, seem to make it the connective between those birds which live wholly on flesh and such as live principally on grain and insects. Indeed, its habits seem to correspond exactly with its conformation, as it feeds indiscriminately on flesh and insects, and, in some measure, is found to partake of a double nature. Its appetite for the former, however, is most prevalent; for when it can obtain flesh, it always gives it the preference to insects. Thus circumstanced, the life of this bird is a continual series of combat and opposition; its size being too insignificant to alarm some of the smaller birds of the forest, it frequently meets with antagonists who are willing to try their strength, and it never declines the engagement. It is astonishing to behold with what intrepidity this little creature will engage the pie, the crow, and the kestrel; all of which are considerably larger than itself, and sometimes prey upon flesh in the same manner. The Butcher-Bird, however, not only fights on the defensive, but frequently begins the attack, and always with advantage; particularly when the male and female unite to protect their young, and to drive away the more powerful birds of rapine. They do not, at this season, wait the approach of their invaders; it is sufficient that they see them at a distance preparing for the assault. They immediately fall forth with loud cries, and attack them with uncommon fury. They generally come off victorious in these contests; though it sometimes happens that they fall to the ground with their adversaries, and the combat ends in the destruction both of the assailants and the defenders. The most redoubtable birds of prey are on friendly terms with the Butcher-Bird; the kite, the buzzard, and the crow, seem rather to fear than wish to offend it. Nothing displays more the respect paid to this claim of courage, than to see this little bird, so contemptible

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contemptible in appearance, fly in company with the falcon, and the other tyrants of the air, regardless either of their power or repentment.

The Butcher-Bird seizes small birds by their throats, and strangles them in an instant; the Germans therefore give it the name of the wurchangel, or the suffocating angel. When it has thus killed any birds or insects, it fixes them on some neighbouring thorn, and then pulls them to pieces with its bill. If confined in a cage, it treats its food in much the same manner; striking it against the wires before it attempts to devour it. Nature has not furnished it with strength sufficient to tear its prey to pieces with its feet; as the hawks do; and it is therefore obliged to have recourse to the above expedient. During summer, such of the Butcher-Birds as constantly reside here, remain among the mountainous parts of the country; but in winter they descend into the plains, and approach nearer to human habitations. The nests of the larger kinds are built in the highest trees; but those of the smaller are concealed in bushes in the fields, and hedgerows. They lay about six eggs, which are white, encircled at their larger ends with rings of a brownish red colour. The outsides of their nests are composed of white moss interwoven with long grass; their insides are well lined with wool; and they are usually fixed among the forked branches of trees. When the young are produced, the female feeds them with caterpillars and other insects; but in a short time afterwards she accustoms them to flesh, which the male is very assiduous in procuring.

In their parental care, they differ from most other birds of prey; for, instead of driving out their young from their nests to shift for themselves, they carefully attend them, and do not forsake them even when they are capable of providing for themselves; and the whole brood live together in one family. Each family usually consists of the male, female, and five or six young ones; peace and subordination is preserved among them; and they usually hunt together. These birds are easily distinguishable at a distance, not only from their being in small parties, but from their peculiar manner of flying, which is seldom direct, or sideways, but generally moving up and down.

BUTCHER-BIRD, GREATER. This species weighs about three ounces, and is about ten inches long and fourteen broad. Its bill is one inch long, black, and hooked at the extremity; the nostrils are oval, covered with black bristles pointing downwards; the head is very large, and the muscles which move the bill are strong and thick. The crown of the head, the back, and the coverts on the joints of the wings, are cinereous; the rest of the coverts are black; the quill-feathers are black, with a broad white bar in the middle of each; and all of them are tipped with white, except the four first, and four of those next the body. The tail is composed of twelve feathers, the longest of which is in the middle; each side of the head is white, with a broad black stroke crossing from the bill to the hind part of the head; the throat, breast, and belly, are of a dirty white; and the legs are black. The female is of the same colour with the male, except on the breast and belly, which are marked with numerous semicircular lines.

BUTCHER-BIRD, RED-BACKED. The male of this species weighs about two ounces, and the female something more. The length of the male is seven inches and a half, and the breadth eleven

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inches; the head and the lower part of the back are of a fine light grey; and a broad black stripe runs across the eyes from the bill. The upper part of the back and the coverts of the wings are of a bright iron colour; the breast, belly, and sides, are of an elegant blossom colour; the two middle feathers of the tail are the longest, and entirely black, and the lower parts of the others are white. In the female, the stripe across the eyes is of a reddish brown; the head is of a dull rust colour inclining to grey; the breast, belly, and sides, are of a cream colour, marked with semicircular dusky lines; and the tail is of a deep brown, except that, in both the male and female, the exterior webs of the outward feathers on each side are white. These birds build their nests in low bushes, and lay about six white eggs, encircled on their larger ends with brownish red rings.

BUTCHER-BIRD, CREAM-BREADED, frequently called the Wood-chat. The bill is of the colour of horn; the feathers which surround the base are whitish; a black line crosses the eyes, and falls downwards on each side of the neck; the head, and the hind part of the neck, are of a bright bay; the upper part of the back is dusky; the coverts of the wings and the tail are also dusky; the quill-feathers are black, with a white spot on each towards the bottom; the throat, breast, and belly, are of a cream colour; the two middle feathers of the tail are black; and the exterior edges and tips of the rest are white. In the female, the upper part of the head, the neck, and the body, are reddish, striated with brown; the lower parts of the body are of a cream colour, with rays of brown; and the tail is reddish, inclining to brown, and tipped with red.

BUTCHER-BIRD, CRESTED. The bill of this bird is somewhat like that of a hawk, but longer. Behind each eye there is a black spot, in shape like a crescent; black bristles project round the basis of the upper mandible of the bill; the crest, or crown of the head, is of a reddish colour; the upper side of the neck, the back, the rump, and the upper side of the tail, are red, or russet, but not so vivid as the crest. The sides of the head round the eyes, the throat, breast, belly, thighs, and coverts under the tail, are of a dirty pale orange colour, with transverse dusky lines; the wings are brown, the greater feathers being somewhat darker than the coverts, and edged with a lighter brown; the legs, feet, and claws, are black; the under side of the tail is of a clay colour, the middle feathers being the longest; and the side feathers gradually decrease in length.

This bird is a native of Bengal, where it is called charah.

BUTCHER-BIRD, LEAST. This bird resembles the long-tailed tit-mouse, and is hardly larger; an evident proof that an animal's courage or rapacity does not depend on its size. The bill is yellow, short, strong, and convex; the circle round the eyes is of a bright orange colour; and from the basis of the bill rises a broad black bar, which encircles the eye, and tending downwards below it, terminates in a point. The throat and sides of the head are white; the crown of the head is of a blueish ash colour; the breast is faintly tinged with a blossom colour; the beginning of the belly is whitish, the thighs, and those parts towards the vent, becoming darker; the sides under the wings are clouded with orange colour; the covert-feathers under the tail are black; the upper side, neck, back, and tail, are of a red brown, inclining to

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orange; the greater quills of the wings are black, edged with white; the inner next the back are black, edged with orange; the first row of the upper covert-feathers of the wings exactly corresponds in colour with the quills they cover, though in the orange-hue they are tipped deeper and brighter than the quills, and form a bar of orange across the wings; the lesser coverts are black; the ridges of the wings are white; the inferior covert-feathers of the wings are of a yellowish white; and between the back and the upper coverts of the wings a few light or whitish feathers are intermixed. The tail consists of twelve feathers, of which the middlemost are the longest, and gradually shorten towards the sides, till they become one half shorter than those in the centre; the inferior side of the tail declines from an orange to a cinereous colour; and the legs and feet are black. The hen differs from the cock in having no black marks round the eyes; the coverts under the tail are of a light brown colour; the top of the head is of a dirty brown; the back is sprinkled with some dusky spots, tending lengthways; and the point of the bill is black.

This bird, though not very common, has been discovered in different parts of England; and seems chiefly to frequent a marshy soil.

BUTCHER-BIRD, FORK-TAILED INDIAN. This species has a thick, strong bill, somewhat arched, and the upper mandible overhangs the lower. The basis of the upper mandible has several stiff hairs round it, projecting forwards; both the upper and the lower mandibles are of a dusky brown colour, lighter towards their bases, and gradually becoming darker towards their points. The whole head, neck, back, and covert-feathers of the wings, are of a bright shining black, reflecting blue, purple, and green, as they are turned and exposed to different lights. The greater quills, with some of the first row of covert-feathers next above them, are of a rusty black, without any lustre; but the quills next the body are of the colour of the head and back. The tail-feathers are shortest in the middle, and of a dull rusty black colour; the whole belly, thighs, and covert-feathers under the tail, are white; the sides and thighs are slightly clouded with dusky spots; and the legs, feet, and claws, are of a blackish colour.

This bird, which, from its peculiar formation, seems as proper to be referred to the magpie class as that of the Butcher-Birds, is a native of India, and is there called *singah*.

BUTCHER-BIRD, BLACK AND WHITE. This beautiful bird is a native of Surinam, in South America. Near the head the beak is pretty thick, but grows less towards the point, and is of a dusky colour. The upper mandible has a slight incurvation downwards, near the end, or tip, and overhangs the lower; and on each side of the point of the upper mandible there is a small notch or angle. The feathers at the base of the beak point forwards, and partly shade the nostrils; the plumage all over the head, body, wings, and tail, is black and white, with transverse bars or marks; the covert-feathers on the insides of the wings are almost white, having a very small proportion of black confusedly intermixed; the interior webs of the quills have white spots; and their insides, as well as the under side of the tail, are almost of the same colour with the upper. The tail is composed of ten feathers; the exterior toe of each foot adheres to the middle one near its bottom; the legs, feet, and claws, are dusky; and each single feather, all

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over the body, is marked with several transverse bars of black and white.

BUTEO. Another name for the buzzard.

BUTORIUS. A name sometimes given to the *ardea stellaris*, or bittern.

BUTRO. The name of a wild bull.

BUTS-KOPF. This fish, to which some naturalists give the name of the flounder's head, is best known in England under the appellation of the grampus. The snout, fins, and tail, resemble those of the dolphin; but the body is more than four times as thick, especially about the belly. It is eighteen feet long, and upwards of ten feet in circumference. The snout is flattish, and reverts upwards; the lower lip is so thick, that it falls from the upper as the fish lies along; and the mouth is armed with forty teeth, of which the foremost are blunt and slender, but the hinder are sharp and thick.

BUTTERFLY. In Latin, *Papilio*. A numerous genus of insects, furnished with mealy wings and spiral mouths, which undergo several transformations before they arrive at their perfect state. The caterpillars proceed from the eggs; these change into the chrysalides, or *aureliæ*; and then the Butterflies appear, which, from their beautiful and surprising variety of colours, may be regarded as some of the greatest curiosities in natural history; and therefore require a connected description through their various gradations.

Caterpillars, which constitute almost one-third part of insects in general, may easily be distinguished from maggots, or worms, by the number of their feet; as well as by their producing Butterflies, or moths, the first of which are called diurnal, and the latter nocturnal insects. When the sun calls forth vegetation, and vivifies the various eggs of insects, the caterpillars are the first which appear; and are accordingly seen on every vegetable and tree, eating their leaves, and preparing for a state of greater perfection. They have feet both before and behind; which not only enable them to move forward, but also to climb upwards on vegetables, and to expand themselves from the boughs and stalks, in order to reach their food at a distance. All reptiles of this class have from eight to sixteen feet; and this peculiarity alone may serve to distinguish them from the worm tribe, which never have so many.

The transmutations which caterpillars undergo are more numerous than those of any insects hitherto mentioned; and, in consequence, they have been placed in the third order of changes by Swammerdam, who has thrown so much light on the subject of natural history. When excluded from the eggs, they become crawling caterpillars; then insensible *aurelias*, as they are called, without life or motion; and lastly, Butterflies variously painted, according to their different kinds.

It is well known by united experience, that all caterpillars are hatched from the eggs of Butterflies; and those who observe them most minutely, will find the fly very careful in depositing its eggs in places where they are likely to be hatched with the greatest safety and success. During the severity of winter, therefore, the greatest number of caterpillars continue in an egg state, in that lifeless situation defying all the rigours and humidity of the climate; and, though often exposed to all its changes, they still preserve the latent principles of life, which are more fully exerted at the approach of spring. The same power that pushes forth

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forth the budding leaf and the opening flower, impels the insect into animation; and Nature seems at once to furnish the guest and the feast; for when the insect has acquired sufficient strength to break it's shell, it always finds it's favourite aliment provided for it in abundance. All caterpillars, however, are not protruded from their eggs in the spring; many of them have subsisted during the winter in their aurelia state, when they are apparently deprived of life and motion. Some are inclosed in a kind of shells, which they have spun for themselves at the end of autumn; others are concealed under the bark of trees; some in the chinks of old walls; and many are buried in the ground. But some caterpillars do not make any change whatever at the approach of winter, but continue to live in their reptile state throughout all the inclemencies of that season. They generally make choice of some retreat, where they can remain undisturbed for months together; and, in fact, they then seem as motionless and insensible as if they were really dead. Their constitutions are such, that food would at these periods be useless; and the cold prevents their making those dissipations which require restoration. In general, caterpillars of this kind are found in great numbers together, inclosed in one common web, which covers them all, and screens them from the injuries of the air. And, lastly, there are some of the caterpillar-kind, the Butterflies of which live during the winter; and, after having fluttered about a considerable part of the latter end of autumn, seek out a winter retreat, in order to answer the ends of propagation at the approach of spring. These are often found lifeless and motionless in the hollows of trees, or the clefts of timber; but, on being brought near a fire, they recover life and activity, and seem to anticipate the desires of the spring. In general, however, whether the animals have subsisted in an egg state during the winter, as Butterflies bred from aurelias in the beginning of spring, or as Butterflies which have subsisted during the winter, and laid eggs as soon as the leaves of plants were shot forward; the whole swarm of caterpillars are in motion to share the banquet that nature has provided. There is scarcely a plant which has not it's own peculiar insects; and some are known to support several of different kinds. Many of these are hatched from eggs, at the foot of the tree, and climb up to it's leaves for subsistence; the eggs of others have been glued by the parent Butterfly to the leaves; and they are no sooner excluded from the shell, than they find themselves in the midst of plenty.

When the caterpillar first bursts from the egg, it is small and feeble, it's appetites are in proportion to it's size, and it seems to make no great consumption: but, as it increases in magnitude, it improves in it's appetites; so that, in it's adult or caterpillar state, it is the most ravenous of all animals whatsoever. A single caterpillar will consume double it's own weight of leaves in a day, and seem in no respect disordered by the meal. These voracious habits, with it's slow crawling motion, and, still more, a stinging like that of nettles, which follows on handling the greatest number of them, render these insects, to most people, not very agreeable objects of curiosity. However, many philosophers have spent years in their contemplation; and have not only attended to their habits and labours, but minutely examined their structure and internal conformation.

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The body of the caterpillar, when anatomically considered, is found to be composed of rings, whose circumference is nearly circular, or oval. These annulations are generally twelve in number, and all membranaceous; and by these caterpillars may be distinguished from many other insects which nearly resemble them in shape. The heads of caterpillars are connected to the first rings by their necks; and are generally so short and contracted, that they are scarcely perceptible. All the covering of the head of one of these animals seems to consist of a shell; and they have neither upper nor under jaws, for they are both placed rather vertically; and each jaw is armed with a large thick tooth, which is, singly, equal to numbers. With these teeth the caterpillars devour their food in amazing quantities, and some of the kinds defend themselves against their enemies. Though their mouths are shut, their teeth always remain uncovered; and while the insects are in health, they seldom lie idle. Whatever leaves the caterpillars devour, their teeth serve to chop them into small pieces, and render their parts fit for swallowing. Many kinds, while they are young, eat only the succulent part of the leaf, and leave all the fibres untouched; others, however, attack the whole leaf, and eat it quite away: and it is amusing enough to observe the avidity with which these animals feed; some prolonging their feast throughout the whole day, others having their stated hours of repast, some chusing the night, and others the day. When the caterpillar attacks a leaf, it places it's body in such a situation, that the edge of the leaf shall fall between it's feet, which keep it steady; while the teeth are employed in cutting the leaf, somewhat after the manner of pruning-sheers; and every morsel is swallowed the instant it is cut. Some caterpillars feed on leaves so very narrow, that they are capable of managing the whole breadth at once; in which case they devour it from the point downwards.

As the species of caterpillars are various, so they also differ in the number of their feet, some having eight, and others sixteen. The six foremost are covered with a sort of shining gristle, and are therefore called the shelly legs. The hind feet, of whatever number they consist, are soft and flexible, and are thence called membranaceous. Caterpillars also, with respect to their external figures, are either smooth or hairy. The skin of the first kind is either soft to the touch, or hard like shagreen; while that of the latter is hairy, and somewhat prickly, and in general affects the fingers with a sensation like that occasioned by nettles; and some of them cause this stinging pain if but approached too near.

Caterpillars, in general, have six small black spots, placed on the circumference of the fore ring, and a little to the side of the head. Three of these spots, which are larger than the rest, are convex and transparent; and these Reaumur considers as the eyes of the caterpillars. However, most of these animals have very little occasion for sight, and seem only to be directed by their feelings. But the stigmata, as they are called, or those holes on the sides of the animal's body through which it is supposed to breathe, principally claim our attention. All along the body of the insect these apertures are easily perceptible: they are eighteen in number, nine on a side; and are placed rather nearer the belly than the back, affording a hole for every ring of which the animal's body is composed,

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posed, except the second, the third, and the last. These oval openings may be considered as so many mouths, through which the insect performs the office of respiration; and, indeed, it requires no great share of anatomical dexterity to discover eighteen pair of lungs in the larger kinds of caterpillars, which appear, at first view, to be hollow, cartilaginous tubes, and of the colour of mother-of-pearl. These tubes are often seen to unite with each other; some are perceived to open into the intestines; while others lead to different parts of the surface of the body. That these vessels serve to convey the air, appears evident from the famous experiment of Malpighi; who, having stopped up the mouths of the stigmata with oil, quickly suffocated the animal. In order to ascertain his theory, he rubbed oil on other parts of the body of the insect, leaving the stigmata free; but this operation seemed to have no effect on the animal's health, as it continued to move and eat as usual: he then rubbed oil on the stigmata of one side only; when the animal underwent a partial convulsion, but recovered soon after. However, it should be remarked, that the air is not so necessary to these as to the nobler ranks of animals, since caterpillars will exist in an exhausted receiver for several days together; and though they may appear to lie dead at the bottom, when taken out, they recover, and resume their former vivacity.

If the caterpillar be dissected longitudinally along the back, it's intestines will be perceived to run in a straight line from the mouth to the anus. These guts resemble a number of small bags opening into each other, and strengthened on both sides by a fleshy cord by which they are united. On many occasions the insects are observed to cast forth the internal coats of their intestines with their food, during the changes they so frequently experience. But the intestines occupy but a small part of the animal's body, if compared with the fat or unctuous substance in which they are involved. This substance changes it's colour when the insect's metamorphosis begins to approach; and, from white, it is usually seen to turn yellow. If to these parts we add the insect's implements for spinning, we shall have a rude sketch of this animal's conformation; but the life of a caterpillar seems only one continued scene of successive changes; and it appears to throw off one skin merely to assume another, which also is divested in it's turn; and so on for eight or ten times successively.

We must not, however, confound this changing of the skin with the great metamorphosis which the insect is afterwards doomed to undergo. The throwing off one skin, and assuming another, seems, comparatively speaking, but a slight alteration, being only the work of a day; but the other is the great adventure of it's life. Indeed, this faculty of changing the skin is not peculiar to caterpillars only, but is common to all the insect tribes; and even to some animals which claim a higher rank in the scale of nature. With respect to caterpillars, many of them change their skins five or six times in a season; and these exuviae sometimes appear so compleat, that many might mistake the empty skin for the real insect. Among the hairy caterpillars, for example, the cast skin is covered with hairs; the feet, as well the gristly as membranaceous, remain affixed to it; even those parts which are only discoverable by the help of a microscope, are visible in it; and, in short, all the parts of the head, the skull, and the teeth.

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In proportion as the time approaches when the caterpillar is to divest itself of it's old skin, it's colours become more faint; and the skin, which seems to wither, and grow arid in some measure, resembles a leaf deprived of moisture.

The insect now begins to feel itself under a necessity of changing; but this is not effected without violent labour, and perhaps pain. A day or two before the critical hour approaches, it ceases to eat, loses it's usual activity, and seems to grow totally torpid. It looks about for some place where it may remain in security; and, no longer timorous, appears regardless of the touch. It is observed, at intervals, to bend itself, and elevate it's back; then to stretch to it's full extent; sometimes to lift up it's head, and then to suffer it to drop; sometimes to wave from side to side, and then to remain in quiet. At length, some of the rings of it's body, particularly the first and the second, are seen to swell considerably; the old skin distends and bursts; till, by repeated swellings and contractions in every ring, the animal disengages itself, and creeps from it's former covering. How laborious soever this operation may be, it is performed in the space of a minute; and the animal, having thrown off it's old skin, seems to enjoy new vigour, as well as additional colour and beauty. Sometimes it assumes a new appearance, and colours very different from the old. Those insects which are hairy still preserve their coverings, though their ancient skins do not appear to have lost a single hair; every one of them appearing to have been drawn, like a sword from the scabbard. However, the fact is, that a new crop of hair grows between the old skin and the new, and probably helps to throw off the external covering.

In this manner the caterpillar having continued feeding for several days, begins at last to prepare for it's change into an aurelia. It is most probable that, from the beginning, all the parts of the Butterfly lay hid in this insect in it's reptile state; but that it required time to bring them to perfection, as well as a large quantity of food to enable it to undergo all it's transformations. However, when the caterpillar has fed sufficiently, and the parts of the Butterfly are formed beneath the skin, it is then the season for it to make it's first and principal change into an aurelia, or chrysalis, as some call it; during which, as has been previously remarked, it seems to remain for several days, or even months, without either life or motion.

Preparatory to this important metamorphosis, the caterpillar most usually quits the plant, or tree, on which it is fed; or at least attaches itself to the stalk or stem, in preference to the leaves. It renounces it's food, and prepares, by fasting, to undergo it's transformation. During this period, all the food it has swallowed becomes entirely digested; and it often voids even the internal membrane which lined it's intestines. Some of the tribe, at this period, entirely change their colour; and the vivacity of the tints in all of them seems considerably faded. Those which are capable of spinning themselves webs, set about these operations: and such as have already spun them, await their change in the best state they can. The webs, or cones, with which some of the insects cover themselves, hide the aurelias contained within them; but, in others, which are more transparent; the caterpillar, when it has finished it's spinning, strikes into the claws of the two feet under the tail, and afterwards forces in the tail itself, by contracting

tracting those claws, and striking the feet violently against each other. If, however, the insects be taken from their webs at this time, they appear in a state of great languor; and, being incapable of advancing or retreating, remain wherever they are placed. In this condition they continue one or two days, preparing to change into aurelias, somewhat after the manner they adopted in changing their skins. They then appear with their bodies bent like bows, which they now and then seem to straighten; their legs appear entirely useless; and, if they attempt to change their places, these alterations are effected by evident contortions of their bodies. In proportion as their mutations into aurelias draw near, their bodies become more and more incurvated; while their extensions and convulsive contractions become more frequent. The extremities of their bodies are first disengaged from their caterpillar skins; those parts of their skins remaining empty, while their bodies are drawn up in a contracted form towards their heads. In the same manner they disengage themselves from the two succeeding rings; so that the animals are then entirely lodged in the fore parts of their caterpillar coverings; the half which is abandoned remaining flaccid and empty, while the fore parts are swelled and distended. The animals having thus quitted the hinder parts of their skins, in order to drive themselves up into their fore parts, still continue to heave and work as before; till their skulls are soon seen to burst into three pieces, and longitudinal apertures are made in the three first rings of their bodies, with reiterated efforts. Thus at last they totally emancipate themselves from their caterpillar skins, and for ever bid adieu to their reptile form.

Being stripped of it's last exuviae, the caterpillar becomes an aurelia; in which all the parts of the future Butterfly are distinguishable, but in so soft and tender a state, that the smallest touch is capable of discomposing them. The animal is now become helpless and motionless; but only waits for the assistance of the air, to dry up the moisture on it's surface, and to supply it with a crust capable of resisting external injuries. Immediately after being stripped of it's caterpillar skin, it assumes a green colour, especially in those parts which are distended by an extraordinary afflux of animal moisture: but, in ten or twelve hours after being thus exposed, it's parts harden; the air forms it's external covering into a firm crust; and, in about twenty-four hours, the aurelia may be handled without endangering the little animal left in this defenceless situation.

Such is the history of that small pod, or cone, which is so commonly found near every pathway, adhering to nettles, and other plants, and frequently shining like polished gold. From the beautiful and resplendent colour with which it is thus sometimes adorned, it has obtained the name of the chrysalis, which implies a creature made of gold.

The above are the efforts made use of by these little animals in preparing for a state of perfection. But their care in providing themselves secure retreats during this season of extreme imbecillity is still greater; and it appears as if they were then erecting monuments in which to rest perfectly secure till Nature called them into a new and more improved existence: for which purpose, some of them spin cones, or webs, in which they lie secure till they have arrived at maturity; others, who cannot spin such copious coverings, suspend themselves by their

tails in retreats where they are not liable to annoyance; some mix sand with their gummy and moist webs, and then form themselves a secure incrustation; while others, before their change, bury themselves in the ground, and thus avoid the numerous dangers attendant on a more exposed situation. From their conduct, it might be supposed that they were conscious of the precise time of their continuance in an aurelia state; since their little sepulchres, with respect to their solidity, are proportioned to such a duration. Those which are to continue in that stage of existence but a few days, make choice of some tender leaf, which they render still more pliant by diffusing a kind of glue over it: the leaf thus gradually curls up; and, withering as it unfolds, the insect wraps itself within it, till the genial warmth of the sun enables it to struggle for new life, and burst from it's confinement. Others, whose time of transformation is also near at hand, fasten their tails either to some branch, or to the first worm-hole they meet in a beam, and await their change in that defenceless situation. Such caterpillars, on the other hand, as are seen to lie several months in their aurelia state, act with much greater circumspection: most of them mix their webs with sand, thereby rendering their coverings very strong; while others build in wood, which supplies, as it were, the place of coffins. Those which have made the leaves of willows their favourite food, break the tender twigs into small pieces, and then pound them to a sort of powder; and, by means of their glutinous silk, form a kind of paste, in which they enwrap themselves.

Various are the forms which these animals assume in this state of imbecillity; and it often happens that the most deformed Butterflies issue from the most beautiful aurelias. In general, however, the aurelia assumes the rude outlines of the parts of the animal contained within it; but, as to the various colours which it is seen to assume, they are chiefly the effects of accident; for the same species of insect does not at all times assume the same hue when it becomes an aurelia. In some, the beautiful gold colour is found at one time; while, at another, it is totally wanting. This brilliant hue, which is not inferior to the most superb gilding, is formed in the same manner in which we see leather obtain a gold colour, though none of that metal ever entered into the tincture. It is formed only by a beautiful brown varnish laid on a white ground; and the white, thus gleaming through the transparency of the brown, imparts a charming golden yellow. These two colours are found, one over the other, in the aurelia of the little animal we are now describing; and the whole appears as if gilded, without any real composition.

Thus formed, the aurelia is in time expanded into a Butterfly, and somewhat resembles an animal in the egg, waiting for external warmth to hatch it into life. As the quantity of humidity inclosed within the covering of the aurelia continues to keep it's body in the most tender state, it is requisite that this humidity should be dried up before the little Butterfly can burst from it's prison. Many experiments have been practised, in order to prove that nature may in this respect be assisted by art; and that the life of the insect may be retarded or quickened without being exposed to any real injury: for this purpose, it is only necessary to continue the insect in it's aurelia state, by preventing the evaporation of it's humidity, which will consequently add some days, or even weeks, to it's life;

on the contrary, by evaporating it's moisture, in a warm situation, the animal assumes it's winged state before it's usual time, and goes through the offices assigned to it's existence. To evince the truth of this, Mr. Reaumur inclosed an aurelia in a glass tube; and found the evaporated water, which exhaled from the body of the insect, collected in drops at the bottom of the tube: he then covered the aurelia with varnish; and, having thereby rendered the evaporation more difficult and slow, the Butterfly was two months longer than it's natural term in coming out of it's case. He found, on the other hand, that by laying the animal in a warm room, he hastened the disclosure of the Butterfly; and that by keeping it in an ice-house, in the same manner, he retarded it. Warmth, in this case, acted in a double capacity; invigorating the animal, as well as evaporating the moisture.

When, either by warmth or increasing vigour, the parts have acquired their necessary force and solidity, the Butterfly seeks to disembarass itself of those bands which kept it so long in confinement; some, however, continue under the aurelia form only ten days, some twenty, some several months, and others for a year together. But, in general, the Butterfly makes only a short continuance under it's aurelia form; and, in all, the perfect insect sooner or later bursts not only the natural prison which is formed by the skin of the aurelia, but also that artificial one in which it has inclosed itself. The efforts which the Butterfly makes to liberate itself from it's aurelia state, are by no means so violent as those which it experienced in changing from the caterpillar into the aurelia. The quantity of moisture which surrounds the Butterfly is by no means so copious as that which attended it's former change; and the shell of the aurelia is so dry, that it may be cracked between the fingers.

When the animal is shut up within a cone, the Butterfly always gets rid of the natural internal skin of the aurelia before it eats it's way through the external covering which it's own industry has formed round it. In order to observe the manner by which it divests itself of the aurelia covering, it is necessary to open the cone, and then the efforts of the insect to emancipate itself from it's natural shell may be plainly perceived. When this operation commences, there seems to be a violent agitation in the humours contained within the body of the little animal; it's fluids seem impelled by a hasty fermentation through all the vessels; while it labours violently with it's legs, and makes several other violent struggles to get free. As all these motions concur with the growth of the insect's wings and body, it is impossible that the brittle skin which covers it should long resist; and it at length gives way, by bursting in four distinct and regular pieces. The skin of the head and legs first separates; then the dorsal skin flies open, and dividing into two regular portions, disengages the back and the wings; and, at length, another rupture succeeds in that portion which covered the rings of the aurelia's back. After this the Butterfly, seemingly fatigued with it's exertions, remains very quiet for some time, with it's wings pointed downwards, and it's legs fixed in the skin which it has just thrown off. At first sight, the animal, just set free, and permitted the future use of it's wings, seems entirely destitute of any; and they lie so close, and occupy so little room, as to be entirely imperceptible: however, they soon after expand so rapidly, that

the eye can scarcely attend to their unfolding. From reaching hardly half the length of the body, they acquire, in a most wonderful manner, their full extent and magnitude, so as to be each five times as large as before. Nor are the wings alone thus increased; all their spots and paintings, before so minute as to be hardly perceptible, are now proportionably extended; so that what a few minutes before seemed only a number of confused, unmeaning points, now become distinct and beautiful ornaments. The wing, the instant it is freed from it's late confinement, is considerably thicker than afterwards; so that it spreads in all it's dimensions, and grows thinner as it expands in breadth. If one of the wings be plucked from the animal just set free, it may be spread by the fingers, and it will soon become as broad as that which is left behind. As the wings extend themselves so suddenly, they have not had proper time to dry; and accordingly appear like pieces of wet paper, soft, and wrinkled. In about half an hour, they become perfectly dry; their wrinkles entirely disappear; and the little animal assumes all it's splendor. The transformation being thus perfectly finished, the Butterfly discharges three or four drops of blood-coloured fluid, which are the last remains of it's superfluous moisture. Those aurelias which are inclosed within cones, find their exit more difficult, as they have still another prison to break through: this, however, they accomplish in a short time; for the Butterfly, divested of it's aurelia skin, butts with it's head violently against the walls of it's artificial prison; and probably with it's eyes, which are rough like a file, it rubs the internal surface away, till at last it is seen bursting it's way into open light; and, in less than a quarter of an hour, the animal arrives at full perfection. Thus, to use the words of Swammerdam, we see a little insignificant creature distinguished in it's last birth with qualifications and ornaments which man, during his stay on earth, can never even hope to acquire. To enjoy life, the Butterfly needs no other food than the dews of heaven, and the honied juices which are distilled from every flower. The pageantry of princes cannot equal the ornaments with which it is invested, nor the rich colouring which embellishes it's wings. The skies are it's proper habitation, and the air it's element; while man comes into the world naked, and often roves about without habitation, and without shelter; exposed, on the one hand, to the heat of the sun; and, on the other, to the damps and exhalations of the earth; both alike inimical to his happiness and existence: a striking proof that, while this little animal is raised to it's greatest exaltation, man, in this world, is only a candidate for perfection.

The number of these beautiful insects is amazingly great; and though Linnæus has enumerated above seven hundred and sixty different species, the catalogue is still very incomplete. Every collector of Butterflies can exhibit undescribed species; and he who is fond of minute discovery, can produce animals observable only by himself. In general, however, those of the warmer climates are larger and more beautiful than such as are found in Europe; and we can easily dispense with the beauty of the Butterfly, since we are thus freed from the ravages of the caterpillar.

The wings of Butterflies, as already observed, fully distinguish them from flies of every other denomination. They are four in number; and, should

should two of them be cut off, the animal would notwithstanding be capable of flying. They are, in their own substance, transparent; and owe their opacity to the beautiful dust with which they are sprinkled; and which has been assimilated by some naturalists to the feathers of birds; and, by others, to scales of fishes; just as their imaginations were disposed to catch the resemblance. In fact, if we view the wing of a Butterfly with the assistance of a good microscope, we shall find it to be studded over with a variety of little grains of different dimensions and forms, generally supported on a steeple, regularly laid on the whole surface. Nothing can exceed the beautiful and regular arrangement of these little substances, which thus seem to adorn the Butterfly's wing, like the tiles on a house, those of one row being a little covered by the subsequent: they are also multiform; for on one part of the wing may be seen a succession of oval studs; on another, a cluster of studs, each in the form of a heart; in one place they resemble an open hand; and, in another, they are long, or triangular; while all are interspersed with taller studs, which grow between the rest, somewhat after the manner of mushrooms on a stalk. The wing itself is composed of several thick nerves, which render the construction very strong, though light; and, though covered over with thousands of these scales, or studs, it's weight is very little increased by the number. The animal is with ease enabled to support itself a long time in the air, though it's manner of flying is not very graceful. When the Butterfly intends a distant flight, it ascends and descends alternately, moving sometimes to the right, and sometimes to the left, without any apparent motive. On a closer examination, however, it will be found to fly in this irregular manner in pursuit of it's mate, whom it seems capable of discovering at a considerable distance.

The body of the Butterfly may be divided into three parts; the head, the corselet, and the body. The body, which is the hinder part of the insect, is composed of rings, generally concealed under long hair. The corselet is more solid than the rest of the body, because it gives rise to the fore-wings and the legs. The legs are six in number, though only four are made use of by the animal; the two fore legs being often so much concealed under the long hair of the body, that it is difficult to discover them. If we examine these parts internally, we shall observe the same set of vessels in the Butterfly which composed the caterpillar; but with this difference, that as the blood or humours in the caterpillar circulate from the tail to the head; in the Butterfly, they are found to take a course directly contrary, and to circulate from the head to the tail: so that the caterpillar may be considered as the embryo animal, in which the circulation is carried on differently from that of animals when excluded.

The eyes of all Butterflies have not the same external appearance; for, in some, they are large; in others, small; in some, they are the larger portion of a sphere; in others, they are but a small part of it, and just appearing from the head. In all of them, however, the exterior coat has a lustre, in which may be discovered the various colours of a prism. When examined minutely, it will appear like a multiplying-glass, having a great number of sides, or facets, in the manner of a brilliant-cut diamond. In this particular, the eyes of Butterflies, and of most other insects, entirely correspond: and Leewenhoek asserts, that there are above six thou-

sand facets on the cornea of a flea: hence these animals see not only with great perspicuity, but view every object multiplied in a very surprizing manner. Puget adapted the cornea of a fly in such a position, as to see objects through it by means of a microscope; and nothing could exceed the strangeness of it's representations. A soldier who was viewed through it, appeared like an army of pigmies; for while it multiplied, it also diminished the object. The arch of a bridge exhibited a spectacle more magnificent than human skill could perform; and the flame of a candle appeared like a splendid illumination. But it must be confessed, that still it remains a doubt, whether the insect sees objects singly, as with one eye; or whether every facet is itself a compleat eye, exhibiting it's own object distinct from all the rest.

Butterflies, as well as most other flying insects, are furnished with two instruments, like horns, on their heads, which are called antennæ, or feelers. They differ from the horns of greater animals in being moveable at their bases, and also in having a great number of joints, by which means the insect is enabled to turn them in every direction. Those of Butterflies are placed at the top of the head, pretty near the external edge of each eye. What the use of these instruments may be, which are thus formed with so much art, is as yet unknown to man; but of this we may be certain, that they answer some beneficial purposes: they may, perhaps, serve to guard the eye; they may be useful to clean it; or they may be the organs of some senses of which we are entirely ignorant.

Few insects of the Butterfly kind are destitute of trunks; and of their uses naturalists are sufficiently apprized. They are placed exactly between the eyes; and, when the animals are not employed in seeking their nourishment, they are rolled up in curls. A Butterfly, when feeding, flies round some flower; and, settling on it, uncurls it's trunk, and thrusts it out, either wholly or in part, and employs it in searching the flower to it's very bottom. This search being reiterated seven or eight times, the animal then passes to another; and continues to hover over such flowers as are most agreeable to it's taste, like a bird over it's prey. This trunk is composed of two equal hollow tubes, nicely joined to each other, like the pipes of an organ.

Such is the general figure and conformation of these beautiful insects, which cheer our walks, and add to the beauty of the most delightful season. But it is not by day alone that they wantonly flutter from flower to flower; numbers of them chuse the night for their excursions, and expand their most beautiful colourings during those hours when no human eye beholds them. This tribe of insects therefore has been divided into diurnal and nocturnal flies, or into Butterflies and moths. They may be easily distinguished from each other by their horns or feelers; those of the Butterfly being clubbed, while those of the moth taper to a point.

These two classes equally employ their short existence in a variety of enjoyments. They employ a considerable part of their time in searching for their food, which is found on every flower; and in the pursuit of the females, whose approach they can often perceive at the distance of more than two miles. Their sagacity in this respect is no less astonishing than true; but, by what sense they are thus capable of distinguishing each other at such distances, is not easy to conceive. It is impossible that it can be through the strength of their

their sight, since such small objects would be utterly imperceptible at half the distance; neither can it be by the sense of smelling, since these animals are not furnished with any organs for that purpose. But whatever may be their power of perception, certain it is, that the male, after having fluttered about for some time, is seen to take wing, and proceed directly forward to the place where the female is perched on a flower.

Among the various tribes of insects, it is the general rule that females are larger than the males; and it holds good in a peculiar manner with respect to Butterflies. The body of the male is smaller, and more slender; and that of the female more thick and oval. Previous to the junction of these animals, they are seen sporting in the air, alternately pursuing and flying from each other, and preparing, by a kind of amorous dalliance, for the more important business of their lives: and if disturbed in the act of coition, the female flies off with the male, who appears entirely passive on the occasion.

The females of many species of Butterflies seem to have assumed their airy forms for no other purpose than that of fecundating their eggs, and laying them. They are neither seen fluttering about in quest of food, nor of mates; and all that passes during their short lives, is only a junction with the males for about half an hour; after which they deposit their eggs, and die.

The eggs of female Butterflies are disposed in their bodies like beds of chaplets; and, when excluded, they are generally oval, and of a whitish colour: some, however, are entirely round; and others flattened like turnips. The covering, or shell, of the egg, though solid, is thin and transparent; and, in proportion as the caterpillar expands within the egg, the colours change, and are differently distributed. The Butterfly seems perfectly instructed by Nature in its choice of the plant or leaf on which to deposit its burden. Each egg contains but one caterpillar; and it is requisite that the little animal, when excluded, should be near its proper food: accordingly the little winged creature, though it has itself been fed on dew, or the honey of flowers, makes choice of a very different species of provision for its young, and deposits its eggs on the most unfavourable plants, such as the ragweed, the cabbage, or the nettle. Thus every Butterfly selects not the plants most grateful to it in its winged state, but such as it has been fed on in its reptile form.

The eggs of Butterflies are always attached to the leaves of their favourite plants, by a kind of size or glue; where they continue unobserved, unless carefully sought after. They are sometimes placed round the tender shoots of plants, in the shape of bracelets, consisting of more than two hundred in each, and generally surrounding the shoot like a ring. But some Butterflies secure their eggs from the injuries of the air by covering them with hair plucked from their own bodies; and by this precaution they are kept warm, as well as entirely concealed.

The females of moths lay their eggs soon after they are emancipated from their aurelia state: but there are many Butterflies which flutter about the whole summer, and never think of laying till the cold warns them of their approaching end; and some even continue the whole winter in the hollows of trees, and neglect to provide for posterity till the beginning of April, when they leave their retreats,

deposit their eggs, and die. Their eggs soon begin to feel the genial warmth of the sun; the little animals burst from their caterpillar state; then become aurelias and Butterflies in their turn; and thus continue the round of nature.

Endued, as Butterflies are, with so many stages of existence, and possessed of such astonishing beauty in that state which we may well pronounce their perfect one, it is by no means to be wondered that they should have been noticed, in their several mutations, with the utmost precision, by those who have had leisure to cultivate so pleasing an amusement: and there are not wanting some ingenious naturalists, who have acquired no inconsiderable portion of fame from the accuracy of their observations on these insects alone, though a compleat general history of Moths and Butterflies, Foreign as well as English, seems still to be among the many desiderata of Natural History. Indeed, those who have made the greatest progress in other branches of the science, have in general declined the investigation of every kind of insects: convinced that the infinitude of different tribes, and the extreme minuteness of many of them, would render the utmost efforts of human sagacity unequal to the task of forming a compleat discrimination.

Butterflies have by some naturalists been divided into seven classes, after the following manner.

The first class consists of those which have clavated feelers, keep the planes of their wings perpendicular to that of position, and whose lower wings are applied close to the under parts of their bodies; and these likewise stand and walk with each of their six legs. The white Butterfly, spotted with black, is an instance of this kind.

The second species consists of those which have their wings perpendicular to the plane of position, and whose lower edges likewise only embrace the lower parts of their bodies; they settle on four legs, and generally keep the fore pair of legs folded up. Several kinds of the prickly caterpillars produce Butterflies of this class, and particularly the prickly caterpillar of the nettle.

The third class is composed of Butterflies which carry their wings erect, and have the same sort of feelers as the former class; they only use four legs, the other pair being so small as to be scarcely perceptible. A variety of species may be referred to this class; and particularly some which have their wings spotted with black and white in the shape of the squares of a chess-board.

The fourth class likewise contains Butterflies with clavated feelers, and six real legs. When at rest, they hold their wings perpendicular to the plane of position, but have the edges of their lower wings turned up, so as to embrace and cover the upper parts of their bodies, while all the rest are naked. Besides this, each lower wing has a long appendage near the external end of the base, and a part whose point reaches much beyond the rest of the body. This part seems to form a tail, and therefore some have called this insect a tailed Butterfly. However, there are Butterflies which are destitute of these appendages; and yet have their lower wings so bent, that they embrace the lower parts of their bodies. Butterflies of this class generally appear towards the latter end of July.

The fifth class consists of those which have clavated feelers, and six true legs; but, when they are at rest, generally keep their wings parallel to the plane of position, or at least never elevate them sufficiently for the two upper wings to embrace each

each other above the body. A Butterfly of this class proceeds from a smooth caterpillar of marsh-mallows.

The sixth class is characterized by having clavated feelers, increasing in thickness from their roots to their points. They seem almost continually in motion, hovering over flowers, and thrusting in their trunks, in order to extract the juice. From the noise they make with their wings, some call them by the name of humming-bird moths; but Beaumont places them among the papillio, because the wings of some species are not so entirely covered with farina as to be quite opaque, for they are partially transparent.

Lepidoptera of the seventh class have feelers incurved in the form of rams-horns; of which kind is the Butterfly found very commonly in meadows, on the stalks of plants, and which flies very little in the day-time. Merian, from this circumstance, contends, that it ought to be referred to the class of moths; but Ray and Reaumur place it among Butterflies. Ray likewise makes another class of these Butterflies, with feelers like conical threads.

Mr. Harris, secretary to the Aurelian Society, has given us the following synoptical system of the Papillio, commonly called Butterflies.

Butterflies, says this ingenious gentleman, are distinguished from other insects by these generical characters: their antennæ, or horns, are clubbed at the extremities; their wings, when at rest, are closed together erect over their backs; and they fly only in the day-time.

Linnæus has divided them into five phalanges, or genera; viz. Equites, Heliconii, Danaï, Nymphales, and Plebei.

In that genus which is called Equites, the underwings have each an appendage, or tail; and, from this circumstance, they are denominated swallow-tails.

In the Heliconii, the wings are long, narrow, and even at the edges; the superior ones being large, and the inferior small.

In the Danaï, the wings are smooth and even at the edges, without denticulations or tails, exactly like those of the common white Butterfly.

In the Nymphales, the wings are denticulated, and ocellated, having eye-like spots or rings.

The Plebei comprehends the numerous tribes of minute Butterflies which seem to be a distinct generation or order from any of those just enumerated.

In this country, we have only about fifty-three species: for a more particular account of which the curious reader is referred to Mr. Harris's English Lepidoptera, as it is not possible, in a work of this very general nature, to give more of these elegant insects than a few of the most beautiful and curious specimens in the different genera.

The reader is accordingly presented with accurate descriptions, and delineations from nature, of those which appeared most likely to be acceptable; and some of them are actual non-descripts, from different parts of the world.

These are arranged on four plates, in the following manner.

PLATE THE FIRST.

Fig. 1. BROWN HAIR-STREAK; the BETULÆ, Plebei, of Linnæus. The head, thorax, and abdomen, are of a dark brown colour; and the

wings are also of a lovely dark brown, the superior ones having each a large orange-coloured spot near the tip, which almost covers the fan-membranes.

Fig. 2. *Under-side*. The under-side is of a brownish orange-colour. The superior wings have each a triangular spot near the tip, reaching from the sector-edge half way down the wing, where it terminates in a point, which is not only of a darker brown than the rest, but edged round with a neat white line; there is also a small black spot near the middle of each superior wing. The inferior ones have each a broad bar extending quite across; which is of a darker orange-brown than the rest of the wing, and neatly edged or bordered with white.

The expansion of the wings, from tip to tip, is one inch and three-quarters.

The caterpillar feeds on buckthorn: it changes into a chrysalis in July, and the fly comes forth in August; when it may be found playing on the tops of hedges, near maple-trees, round which it sportively pursues others of its own species.

Fig. 3. The DEIPHOBUS, Equites, of Linnæus. The antennæ, head, thorax, and abdomen, together with the superior wings, are of a fine dark brown; each wing having, near the shoulder ligament, two triangular spots of deep scarlet, the largest near three-quarters of an inch long, and the other, beneath it, about the size of a canary-feed. The inferior wings are of an orange-brown, but very pale: in the centre, on each membrane, near the fan-edge, is a large black spot; and these, joining together, compose a broad irregular bar reaching to the abdominal part, where there are two separate and distinct spots on each wing. The tails are black, and on the fan-edge of each there are six crescent-shaped spots of orange-brown.

The expansion of the wings is six inches and a half.

Edwards says that this Butterfly is a native of China, but it is also known to exist in many parts of the East Indies.

The insect above described is a female: the male, which is smaller, is given by Edwards, who seems to produce it as a distinct species, though their markings are similar, and both were brought from China.

Fig. 4. The BLUE-FLY; the ARGUS, Plebei, of Linnæus. The antennæ are black, having white specks down them; the head is covered with white hair; and the thorax and abdomen are clothed with hair of a lightish blue colour. The wings, which are of a most splendid and beautiful blue, have the gloss of fine satin; and they are each bordered or fringed with white.

Fig. 5. *Under-side*. The under-side is of a grey or ciner-colour, sprinkled all over with small eye-like rings of white, each having a black spot in the middle.

The expansion of the wings is one inch and three-eighths.

The Blue-Fly is common in England. It appears the beginning of June; and is found playing among long grass in meadows, where it constantly sleeps at night.

Fig. 6. BROAD GREEN-BARRED SWALLOW-TAIL. The head, thorax, and abdomen, as well as the wings,

wings, are of a fine deep black; having a broad bar of a light sea-green colour, which takes its rise from a few spots of the same hue near the apex; and, crossing the membranes to the slip-edge near the thorax, extends to the width of three-quarters of an inch, when it seems to renew its course across the under-wings to the abdominal groove, where its width is exactly the same length as the abdomen. On the lower border of the under-wings, there are six spots of a light sea-green colour, one on each membrane; the abdominal alone excepted, which has none.

The expansion of the wings is exactly four inches. This Butterfly, though supposed by some naturalists to be a non-descript, may be seen in Sir Hans Sloane's History of Jamaica; and it is frequently met with in the Brazils.

Fig. 7. BLACK-VEINED WHITE; the CRATAGI, Heliconii, of Linnæus. The thorax and abdomen are black, and covered with a fine hair of a greyish colour, tinged with a greenish hue. All the wings are of a lovely white, with a slight tincture of pale sea-green. The tendons of the wings are very conspicuous, appearing as neat lines of black. The under-side has a similar appearance, only the black tendons appear stronger, and the general colour of the wing partakes of a yellowish-green.

The expansion of the wings is two inches and three-quarters.

The caterpillar feeds on the white-thorn, and assumes the chrysalis in May; and the fly, which appears in June, greatly delights in hovering over corn-fields.

Fig. 8. BRIMSTONE; the RHAMNI, Danaï, of Linnæus. The antennæ are of a rose-colour; and not unlike, either in form or colour, the tubes or buds of the woodbine or honey-suckle. The thorax and abdomen are black, covered with white hair of a brilliant silver gloss, like the finest fatten. The wings are formed in a manner peculiar to this genus; the shoulder-part of the sector-edge projecting beyond the palpi, and the upper or superior wings coming to a sharp point at the tips or apices. The inferior wings have two sharp points at the lower edge. The whole of the wings are of a most beautiful yellow, with a brimstone cast, but much deeper, having a small spot of orange-red near the middle of each.

The expansion of the wings is two inches and a half. The caterpillar, which is green, feeds on buckthorn, in May; and, changing into its chrysalis state about the end of that month, the fly comes forth at the end of June, and is seen in fields, meadows, lanes, commons, and woods.

Fig. 9. LADY OF THE WOODS; the CARDUAMINOS, Danaï, of Linnæus. The head is yellow, covered with hairs of a pale green; the thorax and abdomen are black, having hair of a yellowish colour. The superior wings are of a fine cream-colour; except one-half towards the tip or apex, which glows with an orange-red so extremely brilliant, as to render it quite inimitable by the finest colourers in the world. The tips are tinged with brown, and a small black spot is seen in the middle of each wing, just within the verge of the orange-colour. The under-wings are of a fine cream-colour, and entirely plain.

The expansion of the wings is one inch and three-quarters.

The caterpillar feeds on wild cole, &c. and changes to a chrysalis in July; but the fly does not appear till the ensuing spring, about the beginning of May. It delights in meadows; round which, by the hedges, it will continue to fly more than twenty times successively without once settling. Indeed, we never remember to have seen one of them at rest.

Fig. 10. Female. The Female Lady of the Woods, in some respects very much resembles the male, but in others is materially different. She is somewhat larger, and the markings or characters are more gross; but she is destitute of that beautiful orange-colour on the upper-side of the superior wings which so eminently distinguishes the male. The under-side is of a milky white; the sector-edges and tips of the superior wings, for near a quarter of an inch, are dappled with green; and, in the centre, on the table-bar, there is a black spot or mark like the point of a broad-arrow. The inferior wings are all over beautifully marbled or sprinkled with green irregular markings, here and there a little tinged with yellow. The expansion of the wings is two inches.

Fig. 11. COPPER; the VIRGAUREÆ, Plebeii, of Linnæus. The eyes and head are of a dark-brown; the former being nearly encircled by a neat line of white. The superior wings, which are of a bright red copper-colour, have seven or eight black spots, and are edged with a brown border. The under-wings are of the same dark brown, having each a broadish border at the bottom or fan-edge, with four spots of black.

The expansion of the wings is one inch and an eighth. It flies in meadows, in June and August; and may be found sitting on the grass before sun-rise in company with the blue-fly.

PLATE THE SECOND.

Fig. 1. PAINTED LADY; the CARDUI, Nymphales, of Linnæus. The head, thorax, and abdomen, are dark-brown, covered with hair which shines like bronze or gold. The wings in general are of a brownish orange-colour, dappled with black spots or clouds of various shapes; especially those parts of the upper-wings next the apices, which are all black, except five white spots on each.

Fig. 2. Under-side. The palpi are white, the eyes are red, and the thorax is a light-brown. The upper or superior wings are of a fine light orange-colour, but they become a deep crimson near the body; and the parts towards the tips are of a pale brown, having five white spots. The remaining parts are dappled with black, and there is one large white spot nearly square on the sector-edge. The inferior wings are of a pale yellow-brown, dappled with dark brown spots of various forms, but nearly of a size. Near the lower border, there are five eye-like circular spots.

The expansion of the wings is two inches and a half.

The caterpillar, which feeds on thistles and nettles, changes to the chrysalis in July, and the fly comes out in August. It is fond of settling on docks and thistles, near banks or dung-hills.

Fig. 3. GREAT TORTOISE-SHELL; or the POLYCHLOROS,

CHLOROS, *Nymphales*, of Linnæus. The head is a dark brown; the antennæ are long; and the thorax and abdomen are black, covered with brown glossy hair. The superior wings are of a fine orange-brown, with seven large spots of black, two of which are much larger than the rest, and join to the upper or sector-edge of the wing, one near the middle of the edge being nearly square. The outer or fan-edges are bordered with black, having seven spots of light brown, one on each membrane. The inferior wings are of the same orange-brown as the superior ones; but they are black towards the body; and the lower or fan-edges are bordered with dark-brown, having a black triangular spot on each membrane, where there is a fine blue spot in the form of a crescent. This fly, though not gaudy, is of a very grand appearance.

The expansion of the wings is two inches and three-quarters.

The caterpillar, which feeds on elm-trees, changes to the chrysalis about the end of June, and the fly comes forth in July. It is found flying about in lanes, and is remarkably fond of settling on the bodies of trees.

Fig. 4. GATE-KEEPER; the MEGERA, *Nymphales*, of Linnæus. The head, thorax, and abdomen, are of a very dark olive-brown; the superior wings are of a fine orange-brown; the outer, or fan-edges, have a fine broad border of dark olive-brown. Near the apex or tip of each wing, there is a large black spot about the size of a hempseed, in which are two fine white specks smaller than the head of a minikin pin. The inferior wings are of the same orange-brown as the superior; but, being bordered round with dark olive-brown, the ground-colour of orange-brown appears like a spot in the middle. Near the abdominal corner there is a black spot, having a white speck in the middle; indeed, in some species there are two, and in others none. That which we have described is a female: the male is less, of a deeper colour, and has a large brown cloud in the middle of the superior wings.

Fig. 5. Under-side. The under-side is similar to the upper; except in the inferior wings, which are of a light clay-colour clouded with brown. In these clouds there are five white specks; two near the abdominal corner of each wing, and three near the upper edge.

The expansion of the wings is one inch and three-quarters.

The caterpillar, which feeds on grass, changes to the chrysalis in June, and the fly appears in July. It chiefly flies about banks and hedges in meadows.

Fig. 6. NEW-YORK SWALLOW-TAIL. The antennæ are long, the knobs at the extremity being remarkably large. The head, thorax, and abdomen, are black. None of this species have any palpi. The superior wings are of a fine light yellow, a little on the orange tint. The outer, or fan-edge has a border of black about a quarter of an inch broad; in which, near the edge, are eight spots of light yellow, one on each membrane. Adjoining to the upper or sector-edge, there are four large black spots; and that which is next the thorax, crossing the superior wing,

extends downward through the inferior, growing narrower, and indeed losing itself in a misty point, as it approaches the abdominal corners. The inferior wings are of the same colour as the superior ones. On the bar-tendon in the middle of each wing there is a long angular black stroke. The outer or fan-edges have a border of black, almost three-quarters of an inch broad. Near the external edge of each wing, which is denticulated, there are four yellow crescent-like spots; and near the lower or abdominal corner, there is an eye-like spot, the supposed centre of which is red surrounded with black; over which there is an arc-like mark of blue, concentric with the red spot. The tails at the lower parts of the wings are nearly three-quarters of an inch long.

The expansion of the wings is four inches and a quarter.

The New-York Swallow-Tail is nearly similar to that we have in England; and is found in several parts of the West Indies, as well as North America.

Fig. 7. GRAYLINE; the SEMELE, *Nymphales*, of Linnæus. The head, thorax, and abdomen, together with the whole upper-side, are of a fine olive-brown; but, on the fan-membranes, towards the outer edge, there are several dashes of a light or pale clay-colour; and in two of these on each wing is a round black spot, with a white speck in the centre, appearing like eyes. The inferior wings have also these light markings, but they are there in the form of the blade of a trowel, and of an orange-colour. Near the abdominal corner there is another eye-like spot, but of an orange-colour, having a black speck in the centre; and in the middle of this speck there is a small white one.

Fig. 8. Under-side. The head and thorax are brown. The superior wings are of a bright, though pale, orange clay-colour; one-half is clouded with orange clay-colour, and has the two eye-like spots as in the upper-side. The inferior wings next the abdomen are half-way covered with a cloud of dirty brown, brindled with small strokes of black; the other half is of a pale ash-colour, brindled all over with the same sort of minute black streaks.

The expansion of the wings is two inches and a half.

The caterpillar, which feeds on grass, changes to a chrysalis towards the end of June, and the fly comes forth the end of July. It delights in woods, and flies very low.

Fig. 9. AMERICAN ZEBRA; the CHARITHONIA, *Heliconii*, of Linnæus. The head and thorax are black, spotted with yellow. The abdomen is black on the upper-side, but yellow beneath. The superior wings are of a warm brownish-black, on each of which are three bold bands or bars of yellow: the first of these bars takes its rise from the shoulder, and keeping parallel with the lower or slip-edge, ends a little above the lower-corner; the second begins about the middle of the upper or sector-edge, and approaches the middle of the outer or fan-edge; and the third crosses the wing near the tip or apex in a concentric curve. The inferior wings are of the same brownish black, having a broad yellow bar, which reaches quite across from the outer corner of one wing to the other.

This

This stripe is quite close to the lower edge of the upper wing all the way; and beneath it is a stripe or chain of yellow spots running parallel with the upper one, and at equal distances from each other, with such regularity as to appear like a necklace. In this line there are sixteen spots on each wing; and near the edge below there are eight more.

The expansion of the wings is three inches and a half.

Fig. 10. SMALL GATE-KEEPER; the PAMPHILIUS, Plebeii, of Linnæus. The head, thorax, and abdomen, are black. The wings are all of a light orange clay-colour, bordered with a misty brown; the superior ones have a small black speck near the tips; and each wing is fringed with white.

Fig. 11. *Under-side*. The superior wings are finer and deeper in colour than on the upper-side; the eye near the tip is remarkably lively, having a small white speck in the centre of a black spot, which is again encircled with a ring of yellow. The inferior wings are of a greyish clay-colour, except the upper-part next the thorax, which appears to be one entire cloud of dusky brown.

The expansion of the wings is one inch and a quarter.

The caterpillar feeds on grass; and the fly, which appears at the end of April, or in the month of June, generally plays among the grass, and never flies high.

PLATE THE THIRD.

Fig. 1. GREEN-VEINED WHITE; the NAPI, Danaï, of Linnæus. The antennæ are speckled from the head to the knobs. The head and thorax appear black, covered with a greyish hair; but, near the neck, they are yellowish. The abdomen is black, and powdered with white specks. The wings are of a lovely soft greenish white; and the tendons are very visible, appearing like so many hair-strokes. The tips of the superior wing are black for about a quarter of an inch, between which and the lower or slip-edge there are two black spots. The inferior wings have only one spot, which is on the upper-edge, a little above the outer corner, and generally concealed by the lower edge of the superior wing.

Fig. 2. *Under-side*. The eyes are of a dark brown, nearly approaching to black. The palpi, legs, breast, and the whole of the under-wings, together with the tips of the superior ones, are of a fine bright greenish-yellow. The superior wings have two black spots, as on the upper-side; and the tendons of the inferior ones seem edged or bordered with dust-like specks.

The expansion of the wings is two inches.

This is the description of the female; the male has only one black spot, exclusive of the black tip.

The caterpillar, which is green, feeds chiefly on cabbage; it changes to the chrysalis in September, and the fly appears about the middle of May. It breeds in gardens, but roves over commons, woods, fields of wheat, &c. and is frequently met with even in towns.

Fig. 3. CYANE, or ZIGZAG. The head, thorax, and abdomen, are of a dark brown. The ground of the superior wings is black, but of an orange-brown towards the thorax, with a long dash of

light blue down the long tendon, which is the second from the slip or lower-edge. About half way there is a broad, irregular, whitish, or cream-coloured bar, which crosses the wing to within a quarter of an inch of the fan-edge. The under-wings are of a milky or cream-coloured white, having three rows of black spots crossing the wings from side to side, parallel to each other, amounting to about twenty-one in each wing. They are all bordered with a band of black, which is about a quarter of an inch broad, ornamented with a beautiful zigzag line; and which, taking its beginning from the tip or apex of one of the superior wings, continues along round the borders of all the four wings till it reaches the tip of the other superior one.

Fig. 4. *Under-side*. The under-side has a broad zigzag border, similar to that of the upper, but a little narrower in the under-wings. The general ground of the four wings is a kind of cream-colour; the inferior wing being spotted similar to the upper-side, pretty large, and crowded near the thorax, where the ground is blue, as it is on the table-tendon, or upper-edge. The superior wing is ornamented with black spots or clouds of various forms. There are four remarkable round or oval ones near the outward border; and those which seem to crowd near the shoulders are ornamented with blue and red, which separate or surround them, not easy to be described. The legs are white; and the thorax is of a dark brown, having two black marks on each side.

The expansion of the wings is three inches and three-quarters.

This fly came from Siam, in the East Indies.

Fig. 5. HIGH BROWN FRITILLARIA; the ADIPPE, Nymphales, of Linnæus. The antennæ are pretty long, and almost round; the eyes are large, and of a deep red-brown; the thorax and abdomen are of a dark brown, covered with brown hair of a greenish gloss. The wings are all of a yellow-brown orange-colour, prettily bordered with a double black line on the fan-edges all round; above which, in each membrane, there is a spot in the form of a crescent, which compleats the agreeable uniformity of the border. The other parts of the wings are spotted all over with black of various forms, not easily to be described; but many of them are round, and not so large as a hemp-seed.

Fig. 6. *Under-side*. The under-side is much like the upper, but has no double line in the border. The thorax, as well as the legs, are of a yellow orange-brown, with a greenish gloss. The inferior wings are of a fine golden yellow, ornamented with about two and twenty spangles, shining like silver or mother-of-pearl: and a few others are also seen on the tips of the superior wings, but considerably less, and only about six in number.

The expansion of the wings is two inches and a half. The caterpillar, which is of the bristly sort, feeds on the violet. It changes to the chrysalis about the end of May, and the fly appears in plenty at the latter end of June. It flies in or near woods, and is very strong, bold, and rapid in flight.

The insect above described is a male, and may be known by the thickness and blackness of the first and second fan-tendons, which are loaded with hair rising high on each side, so as to form a ridge at the top.

Fig. 7. FRITTILLARIA, PEARL-BORDERED; the EUPHROSINE, Nymphales, of Linnæus. The antennæ of this fly are full as large as those of the High Brown Frittillaria, and very like them in form. The entire upper-side is of a fine warm yellow-orange. The fan-edge, close to the fringe, is one continued chain of triangular spots, which unite in a string along the outer edge of each wing, and another line of the same triangular spots just above composes an uniform border. Within the wing, on the fan-membranes, about the eighth of an inch, is another row of round spots, one on each membrane: on the superior wing are seven, and on each of the inferior ones six only. Those parts of the wings which are next the thorax and abdomen, are occupied by a great variety of multiform spots of black.

Fig. 8. *Under-side*. The under-side is yellower and much paler than the upper. The black spots near the fan-edges are so faint as hardly to be seen. The thorax is clouded with dark orange-red; and there are seven silver or pearl-coloured spangles along the border or lower edge of the wing. In the very centre, on the table-tendon, is another spangle of an oblong form, not so big as a lint-feed; and there is also one nearly of a triangular form close under the thorax.

The expansion of the wings is two inches.

The caterpillar changes to a chrysalis at the end of April; and the fly appears about the middle of May. It flies only in woods, or lanes in their vicinity, never being above a yard from the ground, on which it is fond of sitting, when undisturbed.

Fig. 9. ORANGE DAPPLED. The head, thorax, and abdomen, are black; the two former being full of small white spots. The superior wings are of an orange clay-colour; but the tips are black, softening off towards the middle of the wing: and this black part is filled with spots of a clear white; one, in particular, remarkably large, being at least half an inch long. However, as four of the tendons intersect this large spot, it seems as if divided, and has the appearance of five spots united together. A line or border of twelve white spots ornaments the fan-edge. The inferior wings are of the same colour as the superior ones, having four black specks in the middle, each joining to a tendon. The whole of the fan-edge is irregularly bordered with a narrow black edging, with a line of white specks, two in each membrane, as in the border of the upper.

The under-side is very similar, though not exactly like the upper.

The expansion of the wings is three inches.

It is found in New York, Maryland, and several parts of the West Indies. It flies very slow, and is fond of settling in shady and marshy places.

Fig. 10. The PIERA, Heliconii, of Linnæus. The antennæ are like hairs; and the knobs, being thin, are hardly discernible. The head, thorax, and abdomen, are of a dark brown; of which colour also are the sector edges, the sector tendons, and membranes; and the fan-edge is tinged with brown. The superior wings are transparent like gold-beaters skin, or thin horn, and have no farina upon them: they are divided into three equal parts by two

brown bands; that next the thorax continuing downward through the inferior wing, and ending near the anus or lower end of the abdomen, on the edge of the abdominal membrane. The inferior wing is of the same transparent brown, except the lowermost half, which is tinged with rose or pink-colour. At the outer corner there is an ocellus, or small eye, about the size of a hemp-feed, which is formed by a gold-coloured ring, surrounding a black spot, in which (not in the middle, but towards the outer part next the corner of the wing) is a small white speck. A brown line seems to divide this part or corner of the ring from the rest. The bottom or fan-edges of these wings are bordered with a narrow crimson edging, above which, about the eighth of an inch, is another crimson line or band; but this last band, which is composed of united arches, does not extend so far, stopping at the eye near the outer corner.

The expansion of the wings is two inches and a quarter.

This fly comes from the West Indies, where it is seen flying in the month of May, about the shrubs and rushes in the savannahs.

Fig. 11. ISINGLASS CLOUDED HELICONII. The antennæ are like threads; and the head, thorax, and abdomen, are brown. All the wings have the transparency of glass. The superiors have each a large triangular spot near the middle of the sector, which extends its point a quarter of an inch towards the centre. The outer or fan-edges are bordered with a pale black band or edging; and the sector, as well as the lower or slip-edge, is brown. The inferior wings are quite clear, and free from markings.

The expansion of the wings is two inches.

This fly comes from Jamaica, where it frequents the savannahs in June.

PLATE THE FOURTH.

Fig. 1. INDIAN WHITE-ADMIRABLE; the IPHICLA, Nymphales, of Linnæus. The eyes are brown, and the thorax and abdomen nearly black. The superior and inferior wings are of a fine olive black, with a greenish cast or gloss. At the tip of each of the superior wings there is a large orange-coloured spot, of an irregular shape, and above a quarter of an inch in diameter. From this part of the wing, and near this spot, rises a broad pearl-coloured bar, which forms a direct line; and, crossing the superior and inferior wings, ends near the abdominal corner, where it is stopped by a large spot of orange. There are some occult markings to be seen through the black part of the wings, which it is difficult, if not impossible, to describe.

Fig. 2. *Under-side*. The palpi and thorax are white, and the legs are of a dark brown. The wings in general are of a reddish purple, watered all over with reddish brown lines parallel to each other; this brown colour is pretty broad round the edges of the fine purple broad bar which extends across the two wings, as on the other side, but considerably stronger in colour.

The expansion of the wings is two inches and a half.

This fly, which is amazingly swift in flight, is fond of settling on the ground in a shady place; and will permit you to come pretty near it, when it darts off with such velocity, that the best eyes cannot discover the course it takes. It is common both in North and South America.

Fig. 3. PURPLE EMPEROR; the IRIS, *Nymphales*, of Linnæus. The antennæ are black, having a little brown speck on the extremity of each. The head, thorax, and abdomen, are brown, but covered with fine hair of a dark but glossy ash-colour. The superior and inferior wings are very dark near the margins or fan-edges, but all the other parts are changeable, according to the different lights in which this beautiful insect is viewed. Sometimes it appears of a sooty black; and, at others, the eye is suddenly dazzled with a resplendent glow of vivid purple: so that, by frequently turning the fly into different positions, the colours play and shift through all the gradations, from a sooty black to the most brilliant purple, in such a manner as undescribably to charm the eye with a delightful and amazing variety. The borders of the wings are ornamented with a row or line of misty orange spots; and, towards the abdominal corners of the inferior wings, there are two eye-like spots, one on each, which consist of a round black spot with a small speck of white in the middle, the black one being encircled with a gold-coloured ring. The superior wings have each a number of white spots; three of which, extending from the middle to the lower or slip-edge, seem to join another band that crosses the inferior wing, and reaches to that part which is nearest the anus, or end of the abdomen.

Fig. 4. *Under-side*. The eyes appear of a red brown, having a white streak under each. The palpi are white; and the thorax, as well as the eyes, are of a blueish or ash colour. The white spots are very similar to those on the upper-side; but the field or ground-colour is of a reddish brown, variegated with black and orange. The table-membrane is of a pale blossom-colour, with two spots of black. Towards the lower corner of the wing, there is a large orange-coloured spot about three eighths of an inch in diameter, the centre of which has a black ring, and within that there is another of purple. The inferior wings are of a dull pearl-colour near the body or thorax, as well as on the outer edge; but, near the white bar or band which crosses the middle, it is of a blood-red brown. The eye on the upper-side near the abdominal corners appears very faintly on this side.

The expansion of the wings is three inches.

The caterpillar, which feeds on fallow, is of a green colour, and has two horns on it's head, like a snail or slug. It is in the caterpillar state during the winter, changes into a chrysalis, hanging by it's tail on the under-side of a leaf in the spring, and the fly appears about the end of June. It flies very high; and sports round the tops of oak and ash trees, where it often settles on a leaf; and, on seeing any small fly, or other insect, pass by, immediately pursues it a little way, when it goes round the top of the tree, and is sure to settle again on the same leaf.

The female is like the male in every respect, except that it has not the beautiful purple hue on the upper side.

Fig. 5. CLOUDED YELLOW; the HYALE, *Danaï*, of Linnæus. The antennæ are reddish, and so are the head and shoulder parts of the superior wings. These wings are of a cream colour, having a round black spot in the middle. Each fan-edge and tip is covered with a broad irregular black border, which at the tip is half an inch wide. In this border are two or three cream-coloured spots nearly in the form of a heart, and the fringe at the edges is red. The inferior wings are of a dismal greyish ash-colour, having a double orange-coloured spot in the middle. The abdominal groove is of a greenish yellow, and the fan-edges at and near the outer corner of the wings are clouded with black. The thorax and abdomen are black, but thinly clothed with yellowish hair.

Fig. 6. *Under-side*. The eyes are black; the palpi are yellow, but reddish at their extremities; and the legs are also red. The superior wings are yellow, but palest near the middle parts. Within about a quarter of an inch of the fan-edge there is a row of black spots, three of the lower ones being large and conspicuous, and the lowest of the same size as that in the middle of the wing on the bar tendon, which is about the bigness of a small hemp-seed. The inferior wings are of a dirty or greyish yellow; in each of which, on the bar tendon, are two spots in double rings of red, close together, the central parts of which appear like reddish pearl, a little inclining to blossom-colour. The fringes of the wings, as well as the sector-edges of both wings, superior and inferior, are red.

The expansion of the wings is two inches and a quarter.

It flies in the middle of August; is very fond of meadows, and particularly attached to fields of clover.

Fig. 7. MARELED-WHITE; the GALATHEA, *Nymphales*, of Linnæus. The head, thorax, and abdomen, are black, but covered with whitish hair. The superior and inferior wings are of a greenish cream-colour, tessellated or chequered all over with multiform black spots: round the borders of each wing, near the fan-edge, is a line or chain of six white spots; those on the inferior wing, in particular, being somewhat in the form of a heart. The fringes are white. On the lower part of each wing, near the abdominal corner, there are three eye-like rings of white, with a white speck in the middle of each.

Fig. 8. *Under-side*. The palpi are white, edged with black; the wings are the same colour as on the upper-side, only that they shew the outlines of the markings on this, except in the middle of the superior wing, which is black, the inferior ones being dusky. A small eye is seen near the tip of the superior wing, and there are two more eyes near the outer corner, as well as four in a line near the abdominal corner of each of the inferior wings.

The expansion of the wings is two inches.

The caterpillar, which feeds on grafs, changes into the chrysalis in May, and the fly generally appears about the 6th of June.

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It is very common in grass fields by the sides of woods and hills, sometimes ten or a dozen playing together, and now and then taking a flight all together till they are quite out of sight.

Fig. 9. WHITE-SPOT SWALLOW-TAIL; the ANCHISES, Equites, of Linnæus. The eyes, thorax, and abdomen, are black. The superior wings are of a fine brownish black, having one large white spot in the middle, which begins about the middle of the upper or sector edge, crosses the end of the table-tendon, and (entering some way into the second and third fan-membranes) ends within half an inch of the fan-edge. This spot is a quarter of an inch wide, and near an inch long. The inferior wings are also of a brownish black, having a broad band of red on each wing in a right line with each other, and crossing the abdomen at right-angles. This bar, which is about half an inch wide, and near an inch long, lies within a quarter of an inch of the lower or fan-edge. It seems by the tendons to be divided into five parts; and each part being round at the bottom, the whole forms a pleasing scallop. At the end of this bar, near the outer corner, is a small speck of red. The under-side is precisely the same as the upper, except the body, which is black, embellished with twelve deep crimson-scarlet spots; two under the eyes, one on each side the bottom of the thorax, and eight on the abdomen, placed in pairs.

The expansion of the wings is three inches and three-quarters.

The caterpillar feeds on the orange-trees in almost all parts of America, especially in the island of Jamaica. The fly, which is exceedingly swift, frequents shady places, and is not easily followed by the human eye.

Fig. 10. PURPLE HAIRSTREAK; the QUERCUS, Plebeii, of Linnæus. The antennæ are very straight, and spotted with specks of white from one end to the other. The eyes are black; the head, thorax, and abdomen, are likewise black, but clothed with lead-coloured hair. The wings, both superior and inferior, are of a fine black, except that half of the superior one next the thorax, which is of a most brilliant and beautiful blue. At the bottom of the inferior wings, near the abdominal corner, there are two short tails, each about the eighth of an inch long.

Fig. 11. Under-side. The under-side is of a lead-colour. The superior wing has a white line crossing the fan-membranes, through the wing, and reaching from the sector-edge to the slip or bottom-edge, parallel to the outer or fan-edge, at the distance of about a quarter of an inch. Between this line and the outer-edge there are two bright orange-coloured spots. The inferior wing has a similar line, but at a greater distance from the fan-edge, and so as to admit of three orange-coloured spots near the abdominal corner, each having a small black speck in the centre. These spots are in a line, and the line is continued by four other similar spots extending to the outer corner of the wing.

This is the description of the male; but the

BUZ

female is like the male in almost every respect, except that she is larger, and her upper-side is all of a fine deep blue, duller or brighter according to the position in which she is seen.

The expansion of the wings is one inch and a half.

The caterpillar, which feeds on oak, changes into a chrysalis the beginning of June, and the fly comes forth about the middle of July. It is only to be found in or near woods, and is fond of playing with it's companions round small oaks.

It may not be improper to add, that the wings of the smallest of the Papilio or Butterfly tribe are not more than half an inch from tip to tip; while those of the largest, called by Marian the Great Atlas, have an expansion of at least ten inches.

BUTTERFLY FISH. This fish, which is caught in the Adriatic Gulph in the winter season, is about eight inches long, has a thick head, but becomes very slender towards the tail. The colour is of a light blue, or ash, with olive or dirty green stripes. The eyes are pretty large, and placed near each other on the top of the head; and, above each eye, some of these fishes have a minute fin. The fore-teeth are long and round, placed near each other, and very regular. The back fin rises very high; and near the top of the fifth ray there is a very beautiful spot resembling an eye, surrounded with a white ring, and ending at the eighth ray; by which mark this fish may be readily distinguished from all other species: this fin is variegated with a dirty green, or olive and blue, and irregular brown and white spots; and the belly is somewhat prominent, and destitute of scales.

BUTTERFLY SHELL. See VOLUTA.

BUZ. A fish caught in the German lakes, more commonly known by the name of albula.

BUZZARD. A rapacious bird of the long-winged hawk kind, belonging to the genus of falcon in the Linnæan system, of which there are several species.

BUZZARD, COMMON. The length of this species is twenty-two inches, and the full expansion of it's wings fifty and upwards. It is the most common of all birds of the hawk kind in England. It breeds in extensive woods, generally fixing on the old nest of a crow, which it enlarges, and lines with wool and other soft materials. It lays two or three eggs, which are sometimes wholly white, and at others spotted with yellow: and when the female happens to be killed during the time of incubation, the cock hatches and rears the brood. The young consort with the old ones for some little time after they quit the nest, which is not usual with other birds of prey, if we except the butcher-birds.

The Common Buzzard is very sluggish and inactive, and much less on the wing than other hawks, remaining perched on the same bough for the greatest part of the day, and always found near the same place. It feeds on birds, rabbits, moles, and mice; and will likewise, in cases of necessity, devour frogs, earth-worms, and all sorts of insects.

The colour of this bird is subject to considerable variations. In some, the breast and belly are brown, and only marked across the crop with a large

large white crescent: usually, however, the breast is of a yellowish white, spotted with oblong ferruginous spots, pointing downwards; the chin is likewise ferruginous; the back of the head, the neck, and the coverts of the wings, are of a deep brown, edged with a pale rufous-colour; the scapular feathers are brown, but become white towards their roots; the middle of the back is covered only with a thick white down; the extremities of the quill-feathers are dusky, their lower exterior sides being cinereous, and their interior blotched with darker and lighter shades of the same colour. The tail is barred with black and ash colour, and sometimes with ferruginous; the bar next the extreme tip is black, and the broadest of all; the tip itself is of a dusky white; and the irides are white, tinged with red.

BUZZARD, HONEY. This species is nearly of the same size as the former. The bill, and the membrane at the beak called the cere, are black, the latter being much wrinkled; the irides are of a fine yellow; and the crown of the head is ash-coloured. The neck, back, scapulars, and covert-feathers of the wings, are of a deep brown; the chin is white; the breast and belly are of the same colour, marked with dusky spots pointing downwards; the tail is long, of a dull brown colour, and marked with three broad dusky bars, between each of which there are two or three of the same colour, but more narrow; the legs are short, strong, and thick; and the claws are large and black.

This bird generally lays two eggs, blotched over with a fainter and a deeper red. It builds its nest of small twigs, which it covers with wool. It feeds on insects, bees, wasps, and some sorts of reptiles; and runs very swiftly.

BUZZARD, MOOR. The colour of this species, on all parts of the body, is of a rusty brown, except the top of the head, which is of a whitish tawney. On the middle joint of the wings there is a reddish clay-coloured spot, resembling that on the head; and there are dark-coloured dun feathers on the rump. The tail is of a dark yellowish, or light brown colour, and about eight or nine inches in length. The legs are about five inches long, of a yellow colour, and much more slender than those of other birds of this kind. The length of the Buzzard, from the tip of the beak to the end of the tail, is a foot and a half; and the wings, when extended, measure four feet. The eyes are of a proportionable size, and their irides of a saffron colour. The legs are covered with feathers a little below the knees; and the general conformation of the bird is more long and slender than that of other birds of prey.

The Moor Buzzard never soars like other hawks, but commonly sits on the ground, or on small bushes. It forms its nest either in the midst of a tuft of grass, or amongst rushes; lays three eggs; is extremely fierce and voracious, preying on rabbits, young wild ducks, and other water-fowl; and, like the osprey, feeds on fish. It generally frequents heaths and barren moors, from whence it has received its name.

BUZZARD, BALD, called by some naturalists the Sea-eagle. This species differs from the common Buzzard, in being white on the back part of the head, in exceeding it both in size and weight, in the length of its wings, in the extreme flexibility of the exterior toe, in having angular processes on the upper mandible, and in preying on fish. The expansion of the wings is about five feet; the beak is short, black, and hooked; the tongue is broad, and soft; the eyes are yellow; the legs are long; and the feet are thick, strong, and of the colour of verdigris. It haunts rivers, pools, lakes, and the sea-shores; builds on the ground, among reeds; and lays three or four large white eggs of an exact oval figure.

BUZZARD, SPOTTED. This scarce species is about the size of the common Buzzard. The bill is black; the cere and legs are yellow; the crown and the hind part of the head are white, spotted with a light reddish brown; and the back and scapulars are of the same colour, edged with white. The quill-feathers are dusky, barred with cinereous; the under-side of the neck, breast, belly, and thighs, are white, marked with a few rusty spots; the rump is white; the middle feathers of the tail are barred with white and deep brown, and the others with a lighter and darker brown.

BUZZARD, TURKEY, OF CATESBY. This species is somewhat larger than a wild-goose. The feathers are partly black, light, and grey; the beak is thick, crooked, and pointed; and the claws are sharp, and very strong. These birds can discover their prey at a vast height; and so very formidable are they, that if an ox lies down to rest, and a company of these voracious animals discover him, they immediately fall on, and devour him.

BUZZARD, ASH-COLOURED, OF EDWARDS. This bird is a native of Hudson's Bay, where it chiefly preys on the lagopus avis, or white partridge. The bill is of a blueish lead colour, covered with a skin of the same hue; the head and fore-part of the neck are covered with feathers having dark brown spots in their centres, and the rest are white; which intermixture has a very agreeable effect. The dark spots on the breast are larger than those on the head. The sides and belly are covered with dark brown feathers marked with roundish white spots; and the thighs are covered with soft, loose, white feathers, with long irregular dashes of dark brown down their shafts. The covert-feathers on the inferior side of the tail are transversely barred with black and white; and the whole upper side, neck, back, wings, and tail, are covered with brownish ash-coloured feathers, darker in their centres, and lighter towards their edges. The upper side of the tail is marked with narrow bars of a clay colour, the under-side being ash-coloured, barred across with white. The legs and feet are of a blueish ash colour; the claws are black; and the fore parts of the legs are partly covered with dusky feathers.

BYRRHUS. A genus of insects of the order of coleoptera, with clavated, almost solid, and compressed antennæ; of which naturalists enumerate five species.

C.

CABIAI, or **CAPIBARA**. An animal referred by some naturalists to the hog kind, on account of a very trivial resemblance between them; but which, if closely examined, will be found to differ in the most obvious particulars from that class of animals.

The Cabiai, with respect to the shape of its body and the coarseness of its hair, resembles a hog of two years old. Like it, the neck is short, and the back round and bristly; like it, too, this animal is fond of water and marshy places, and feeds indifferently on animal and vegetable food. On the other hand, the eyes are larger; and the snout, instead of being rounded as in the hog, is divided like that of the hare or rabbit, and furnished with thick strong whiskers; the mouth is more contracted; and the number and shape of the teeth are different, for it has no tusks. Like the peccary, another singular animal, the Cabiai is destitute of a tail; and, dissimilar to all others of this kind, instead of a cloven hoof, it is in a manner web-footed, and thus entirely adapted for an aquatic life. The fore-hoofs are divided into four parts, and those behind into three; and between the divisions there is a prolongation of the skin, so that the feet, when spread in swimming, are capable of beating a greater surface of water.

As the feet of this animal are thus constructed for the water, so it seems to delight entirely in that element; for which reason some naturalists have given it the name of the water-hog. It is a native of South America; and, like the otter, chiefly frequents the margins of lakes and rivers. It preys on fish, which it seizes with its hoofs and teeth, carries to the edge of the water, and feasts on at leisure; and it also devours fruits, corn, and sugar-canes. The legs being long and broad, it is often seen sitting on its haunches; and, when alarmed, its cry resembles the braying of an ass rather than the grunting of a hog. It seldom ventures from its retreat, except during the night, and then always in company: however, it never makes distant excursions; for, as its feet are ill-adapted to running, its only place of safety is the water, into which it plunges when pursued, and remains so long at the bottom as generally to tire the patience of the hunter.

Even in a state of native liberty, the Cabiai is a gentle animal; and, when young, is easily tamed: it will even answer to its name, and discover a fond attachment to the person who usually feeds it. The flesh of this creature is said to be fat and tender; but, from the nature of its food, it has a fishy taste. The head, however, is esteemed excellent; and in this respect it resembles the beaver, the fore-parts of which taste like flesh, and the hinder like the fish it feeds on.

CABILJAU. An African fish, of an ash-colour, covered with large scales, and marked down the back with a black list, which runs from the head to the tail. It grows to the length of about two feet and a half, and has very hard fins. The flesh is reckoned extremely nutritive.

CABILIAU. A name used by some naturalists to express the common cod-fish, the morhua and asellus major of naturalists.

CABOS. A species of eel-pout, which grows

to the length of two feet, and is very fat. The skin is extremely smooth, of a brownish colour, and destitute of scales; the snout is pale, spotted with black; and the head is short. The flesh of the Cabos is well-flavoured and wholesome.

CABOTE. A fish of the cuculus kind, more usually known among authors by the name of the corax.

CABURE. A Brazilian bird of the owl kind, about the size of a small thrush. The bill and irides are yellow; the legs are short, and covered with feathers; the claws are black; the tail is broad, and of the colour of faint umber waved with white. The entire upper part of the head, the back, and the wings, are likewise of the same colour spotted with white, the spots on the head and neck being very small, but those on the wings larger; and the breast and belly are white, variegated with spots of a dull brown. The Brazilians keep this bird tame, on account of its many diverting tricks.

CACABOGA. An American serpent, by some naturalists accounted the same with the tareiboia, or black water-snake, of that part of the world. It is, however, described by others as of a yellow colour, living near houses, and destroying abundance of poultry, though its bite is not fatal.

CACHALOT. A setaceous fish, having teeth in the lower jaw only; classed by Linnæus under the physeter.

This animal has generally been referred to the same class with the spermaceti whale; but the ingenious Pennant very properly makes a distinction between them. Naturalists enumerate seven varieties of this species; the principal of which are, the blunt-headed Cachalot, the round-headed Cachalot, and the high-finned Cachalot.

This tribe of fishes is of inferior dimensions to the whale properly so called, not being in general above sixty feet long, and sixteen in circumference. In consequence of their being more slender, they are considerably less unwieldy than the common whale; are capable of remaining longer at the bottom of the sea; and afford a smaller quantity of oil in proportion to their magnitude. Even in the common whale, the head makes a third part of the bulk; but in this species it constitutes at least one half. The tongue of the Cachalot is small; but the throat is so enormously wide as to be capable of admitting an ox entire. In the stomach of the whale scarcely any thing is to be found; but in that of the Cachalot there are frequently vast quantities of fish of different kinds; some whole, and others half-digested, some small, and others eight or nine feet long. The Cachalot is therefore as destructive among lesser fishes as the whale is harmless; and, at one gulp, can send a shoal of them down its enormous gullet. Linnæus informs us, that this animal is so formidable to dolphins and porpoises, as often to drive them on shore.

But how terrible soever this fish may be to its fellows of the deep, it is by far the most valuable and most desired by man, as it yields two very precious drugs, namely, spermaceti and ambergris. The use of these, either for the purposes of luxury or medicine, is so universal, that the capture of this animal, which alone supplies them, turns out to

very great advantage; particularly since the art has been discovered of converting all the oil of this creature, as well as the brain, into the substance called spermaceti.

This production, as it is naturally formed, is found in the head of the animal; and, in fact, is nothing else but the brain. The exterior skin of the head being stripped off, a covering of fat, about three inches thick, presents itself; under which, instead of a bony skull, the Cachalot has only another thick skin, which serves to cover and defend the brain; and the first cavity or chamber of the brain is filled with that spermaceti which is supposed of the greatest purity and the highest value. This cavity generally yields about seven barrels of the clearest spermaceti; which, when thrown on water, coagulates like cheese. Below this there is another chamber, exactly over the gullet, which is about seven feet high; and this also contains the same fluid, but of inferior value. It is distributed in this cavity like honey in a hive; in small cells, separated from each other by membranes like the interior skins of eggs. In proportion as the oily substance is drained from this part, it fills afresh from every part of the body; and from this is generally obtained about nine barrels of oil. Besides these, the spinal marrow, nearly as thick as a man's thigh, and which reaches all along the back-bone to the tail, where it becomes extremely small, affords no inconsiderable quantity of the same valuable substance.

Spermaceti, which is used in the composition of many medicines rather to give them consistence than efficacy, was originally sold at a very high price, both from the numerous virtues ascribed to it, and the small quantities that the Cachalot was deemed capable of supplying: at present, however, the price is greatly fallen, owing to its little efficacy in medicine, and the immense quantities now produced by a modern invention of converting the oil into spermaceti. This operation is performed by boiling it with a lee of potash, and hardening it after the manner of soap; and so plentiful is spermaceti now become, that candles are made of it, which are sold cheaper than those composed of wax.

The ambergris which is sometimes found in this species of whale was long considered as an heterogeneous substance, for which no origin could be assigned. But time, which reveals the secrets of nature, as well as the frauds of the interested, has discovered that it is chiefly derived from this animal. The name which is improperly given to the spermaceti, seems more justly to belong to this; for the ambergris is found in the place where the seminal vessels are usually situated in other animals. It is lodged in a bag three or four feet long, in round lumps, from one to twenty pounds weight, floating in a fluid somewhat thinner than oil, and of a yellowish colour: these bags never contain more than four of these balls; and one which weighed twenty pounds, and was the largest ever seen, was discovered single. The ambergris, however, is not found in all fishes of this kind, but chiefly in the oldest and strongest. Its uses in medicine, luxury, and perfumery, are well known; though its intrinsic value is small, and its qualities, perhaps, had better have remained unascertained.

CACHALOT, BLUNT-HEADED. This species is about fifty-four feet long; the greatest circumference below the eyes is thirty feet; and the superior jaw, which is five feet longer than the inferior, mea-

asures fifteen feet. The head is of an enormous size, extremely thick, and extends upwards of one-third of the whole length; the end of the upper jaw is quite blunt, and near nine feet high, at the extremity of which is the spout-hole. The teeth are arrayed in the lower jaw, twenty-three on each side, all pointing outwards; and in the upper jaw, opposite to them, there are an equal number of cavities, in which the ends of the teeth lodge when the mouth is shut. The eyes are very small, and remote from the nose. The pectoral fins are placed near the angle of the mouth, and measure about three feet in length; and, except a large protuberance on the middle of the back, there is no appearance of a fin. The tail is a little forked, and about fourteen feet from tip to tip. A fish of this kind was driven ashore on Cramond Isle, near Edinburgh, in December 1769.

CACHALOT, ROUND-HEADED. Upwards of a hundred of this species, of different sizes, were cast ashore at one time on one of the Orkney islands. The head was round; the aperture of the mouth was small; the teeth were an inch and three quarters long, and in their thickest places about the size of a man's thumb. There was no dorsal fin, the space being occupied by some cutaneous asperities.

CACHALOT, HIGH-FINNED. The spout-hole of this species is placed in front; and on the middle of the back there is a high fin, which that great naturalist Sir Robert Sibbald compares to the mizen-mast of a ship. The teeth are slightly incurvated, and near eight inches long. A fish of this kind was cast ashore on the Orkney Isles in the year 1687.

CADE-WORM. The English name for the phryganium, a common worm found in ditches, and used as a bait for fish. The fly produced from this worm has a long body, four brown wings, and a forked tail. About the month of August it is very frequently found on the surfaces of stagnant and other waters.

CÆCILIA. The name of a genus of serpents. The word Cæcilia is likewise used by some authors to express the fish more usually known by the name of the acus.

CÆRULEUS A name given by some naturalists to a bird of the thrush kind, somewhat resembling that species of blackbird commonly called the solitary sparrow.

Cæruleus is likewise a name given by Solinus to the great Indian worm, described by Pliny and others as inhabiting the Ganges. It is extremely probable, however, that all the accounts handed down to us concerning this monstrous animal are only false descriptions of the crocodile.

CAGADO DE AGOA. A name given by the Portuguese to a species of American tortoise, usually known among authors by its Brazilian name jurura.

CAGADO DE TERRA. A species of American tortoise, so called by the Portuguese; but, by the Brazilians, jaboti.

CAGAO. The Indian name for a large bird which inhabits the mountains, where it feeds on the pistachia nuts, and many other fruits; all which it swallows whole. It is extremely voracious; and its food passes off so quickly, that the pistachias only lose their rinds in its stomach; and almonds their pulpy coverings, the kernels and stones being voided entire. This bird is about the size of a common hen, but the neck is considerably longer.

CAGIT.

CAGIT. The name of a species of parrot very common in the woods of the Philippine Islands. It is of a middling size, and entirely of a beautiful green colour.

CAGUI. A Brazilian monkey; of which there are two species, a greater and a lesser.

The greater Cagui, to which the name of pongi is given by the inhabitants of Congo, is a large animal, with ash-coloured hair mixed with a little black. The face is roundish, and somewhat resembles that of a lion; the ears are round, black, and destitute of hair; the eyes and mouth are likewise black; and the tail, which is near a foot and a half long, is covered with reddish hair.

CAGUI, LESSER. This tender little animal has the face of a lion: the body is no more than six inches long, and the tail ten; the head is about the size of an apple; the mouth is furnished with small sharp teeth; the ears are roundish, and encircled with fine smooth white hair; the tail is surrounded with white and dusky rings; and, except on the face, which is white, the creature has very little hair, and appears all over the body of a dark flesh-colour. The eyes are of a reddish hazel hue, with black pupils; and the general outlines of its face resemble those of the monkey tribe. The paws are covered with short hair; and there are five toes on each foot, like those of a squirrel, with pointed claws, except on the two exterior toes of the hind-feet, which have flat nails.

This animal has a very shrill voice, is extremely active and sportive, and incapable of enduring a cold climate. It feeds on greens, fruit, insects, snails, and small fish.

The young, which are very ugly at first, cling close to the breast of the dam. When they grow a little bigger, they hang on her back, or shoulders, till she is weary, and then she finds means to dislodge them; on which the male immediately takes them under his protection till the female recovers.

CAHLLO. A name given by some authors to the *lupus marinus*, or wolf-fish.

CAIRINA. An appellation by which several naturalists distinguish the Muscovy duck.

CAITAIA. A long-haired Brazilian monkey of a yellowish white colour. The head is roundish; the nose is small and flat; and the tail is held arch-ways. It smells of musk; and, if treated with severity, immediately sets up a loud cry, being extremely irascible. The Caitaia seems to be the same animal described by Clusius, as having been brought from Fernambuco, in Brazil; for he tells us that the body is large, with long shaggy hair of a flesh-colour, and that it smells very fragrantly of musk. There is another species of a deeper yellow colour, which also smells of that substance.

CALANDRA. A bird which seems to belong to the lark family, though it differs from that vocal class of birds in several particulars. The bill is of a yellowish brown colour, and dusky along the top of the upper mandible; and the eyes are of a dark colour. From the superior part of the bill, through the eye, runs a black dusky line, above and beneath which there are interstices of a whitish colour. On the sides of the head below the eyes there are also some broken blackish lines; and at the beginning of the breast it has a remarkable black collar. The throat and fore part of the neck are whitish, mixed with light brown; the top of the head, the upper side of the neck, the back, wings, and tail, are of a reddish brown, the middle part of the fea-

thers being black. The breast, below the collar, is of a light brown, spotted with a darker shade of the same colour; the belly, thighs, and covert-feathers under the tail, are white; the legs, toes, and claws, are of a flesh-colour; the hinder claws are pretty strong, as in larks; and the insides of the wings, as well as the under-side of the tail, incline to ash-colour. This bird is said to be a native of Carolina.

CALANDRE. A name given by French naturalists to a species of insect of the *scharabæus* class, extremely destructive in granaries. The female lays a considerable number of eggs; and the increase of these creatures would be very great, had not Nature ordained that, while they are in the egg, and even in the worm-state, they should be liable to the depredations of mites, which destroy far the greatest number of them before they arrive at maturity.

CALANGAY. A name given by the natives of the Philippine Islands to a species of beautiful white parrot, adorned with a crest of the same colour. It is about the size of a pigeon; is easily tamed and taught to speak; and is sometimes called the catatua and abacay.

CALAO. An oriental bird described by Sonnerat, apparently of the toucan kind, and about the size of an European crow. The bill is extremely long, bent into an arch representing a scythe, denotated at its edges both above and below, and terminating in a sharp point: it is furrowed across, both above and below, for upwards of two-thirds of its length; the convexity of these furrows is brown, and their interstices are yellow. The rest of the bill is smooth, and of a brown colour; and at its base rises an excrescence, of the same substance with the bill itself, which extends about one half of its length. The eyes are surrounded with a brown membrane, entirely naked; but on the eyelids grows a circle of rough short hair, like the human beard. The irides are whitish; the head, neck, back, and wings, of the male, are black, with a greenish cast, changing, according as it is viewed, to blue. The top of the breast is of a bright reddish brown colour; the belly, legs, and vent, are of a deep reddish brown; the tail consists of ten feathers, of a reddish yellow, upwards of two-thirds of their length terminating in a black band; and the feet, which are of a leaden hue, consist of four claws each.

CALARMARY, or SLEEVE-FISH. This creature somewhat resembles the cuttle-fish; but it has an oblong gristly body, covered with two skins; in which respect, as well as in having softer flesh, it differs from the cuttle-fish. However, it has ten legs; the four middlemost of which are pyramidal, and have rough bony tubercles on their insides: on each side of these there is another leg, very long and thick at the extremity, covered with a kind of testudinous tubercles, which the two following pair have through their whole length, on their insides. On the belly there are two receptacles, full of a very black fluid, which might answer the ordinary purposes of ink.

CALENDULA. A species of the *motacilla*, in the order of *passeres*; a bird found in Pennsylvania.

CALF. The young of the cow kind; an animal too well known to require a particular description. See Cow.

CALF, SEA. See SEA-CALF.

CALLARIAS. A name given by some naturalists

ralists to a fish of the truttaceous kind; called by Aldrovandus, tinca marina; and by Rondoletius and Gefner, phycis. It usually grows to the length of a foot; is of a flattish shape, and covered with small scales of a greyish colour, but purplish on the head; and the tail is roundish, but not forked. The flesh is well tasted, and salubrious. This fish is common in the Mediterranean Sea; and is exposed to sale at Rome, Venice, and other places on the coasts of that sea.

CALLICHTHIS. The name of a broad and flat sea-fish exposed to sale in the markets at Rome, under the title of the campugna; and commonly called the stromateus.

In the Linnæan system, it is a species of the filurus.

CALLICHTHUS. A small fish caught in the Adriatic, by some naturalists called the anthias; and it is supposed that there are no voracious fishes near the place where it is found. It is also called facer piscis, and is extremely beautiful.

CALLIDRYS. A name given by Bellonius, and some other authors, to an aquatic bird known in England by the appellation of the red-shank.

CALLYDRYS, NIGRA. A bird described by Bellonius, supposed to be the same as the above; and called the knot in England.

CALLIONYMUS. A name applied by Apian, and some other authors, to the fish more usually called the uranoscopus, or star-gazer.

In the Linnæan system, it is a genus of the order of jugular fishes, comprehending three species.

CALLITRICHUS, or CALLITRIX. A species of monkey, with a black flattish face, white hairs on the sides, and black ears. The upper parts of the body are covered with soft hair of a yellowish green colour, whence it has received the name of the green monkey; and the lower parts are covered with hair of a silvery colour. This animal is about the size of a small cat.

CALLORYNCHUS. A fish entirely destitute of scales, but furnished with gristly fins. It is of a silver colour on the back, and of a shining gold one on the sides. The lower lip is long and broad; and, when the mouth is shut, it covers the upper. The teeth are only smooth tubercles placed in each jaw; and the nostrils are placed on the lower part of the head, each having only a single aperture. The eyes are situated near the sides of the head, and are covered with a single coat; the irides are of a silver colour; and the eyelids are oval. The belly is large and flat; and the vent is situated between the belly fins, nearer the tail than the head. There are seven fins, two dorsal, two pectoral, and two ventral; the tail constituting the seventh. The length of this fish, from the tip of the snout to the extremity of the tail, is upwards of nine inches.

CAMEL. This forms a distinct genus of animals in the Linnæan system of zoology; the great characteristics of which are, that they want horns, which all the other genera of pecora have; that they have six cutting teeth in each of their lower jaws, and none in their upper; and that their upper lips are divided like those of hares; and their hoofs are small, and undeciduous.

There are several species of Camels: one of which is the dromedary; the only sensible difference between which and the Camel is, that this animal has two bunches on it's back, whereas the dromedary has but one; the latter also is neither so large nor so strong as the former. The two races, however,

generate with each other; and the mixed breed formed between them is considered as the best, the most patient, and the most indefatigable, of all the several kinds.

The dromedary, indeed, is by far the most numerous of the two varieties: the Camel is very scarce, except in Turkey, and the countries of the Levant; while the dromedary is disseminated all over the deserts of Arabia, the southern parts of Africa, Persia, Tartary, and the East Indies. Thus the one inhabits an immense tract of country; the other, in comparison, is confined to a province: the one is a native of the sultry regions of the torrid zone; the other delights in a warm, though not a burning climate. But neither of them can either subsist or propagate in the variable climates of the north; and they seem only to delight in those countries where no other animals are qualified to supersede their utility.

The Camel is the most temperate of all creatures, being capable of continuing it's march for several days without tasting water. In those extensive deserts where the earth is every where dry and sandy, where there are neither birds nor beasts, insects nor vegetables, and where nothing is to be seen but hills of sand; the Camel travels, posting forward without requiring either drink or pasture; and often endures a total want of sustenance for six or seven days successively. It's feet, which are well adapted for travelling on sands, are utterly unfit for moist or marshy places: and accordingly the inhabitants of those sultry regions where it is bred find a valuable slave in this animal, where no other could subsist; and, by it's assistance, cross those deserts with security, which would be impassable by any other known method.

An animal thus formed for a sandy and desert region cannot be propagated in one of a different nature. Many efforts have been made to generate Camels in Spain and America, but they have not multiplied in either of these countries: they are, indeed, sometimes introduced into them, and found prolific; but the care of keeping them is so great; and the accidents to which they are exposed from the variableness of the climate so numerous, that they never repay their necessary trouble and expence: in a few years, they are observed to degenerate; their strength and patience forsake them; and, instead of constituting the riches, they become the burden of their owners.

The case, however, is very different in Arabia, and those other countries where the Camel is employed for the most beneficial purposes. It is there regarded in a sacred light, and as an animal without whose help the natives could neither subsist, traffic, nor travel: it's milk constitutes a part of their nourishment; they feed on it's flesh; they cloath themselves with it's hair; and, in case of invasion, it serves to accelerate their flight, being sometimes known to travel upwards of a hundred miles in a single day. By means of the Camel, an Arabian finds safety in his inhospitable deserts; and all the armies on earth might be lost in pursuit of a flying squadron of this country, mounted on Camels, and taking refuge in solitudes where nothing interposes to impede their flight, or to force them to face their invaders. Thus, where nature presents only objects of danger and sterility, the Arabian finds protection, food, and liberty: in the midst of his solitudes, he lives independent and tranquil; and, instead of considering the wastes spread around him as a restraint on his happiness, he

he is taught by experience to regard them as the munitions of freedom.

The Camel (being a very docile animal) is easily instructed in the methods of taking up and supporting its burden. Its legs are bent under its belly a few days after it is produced; and in this manner it is loaded and taught to rise, the burden being every day increased by insensible degrees, till the animal is capable of supporting a weight adequate to its strength. The same care is taken to render it patient of hunger and thirst: while other animals receive their food at stated times, the Camel is restrained for several days together; and these intervals of famine are increased in proportion as the creature seems capable of supporting them. By this mode of education, it lives five or six days without food or water: and indeed its stomach is admirably fitted by nature for long abstinence; for, besides the four stomachs which all animals chewing the cud possess, the Camel has a fifth, which serves as a reservoir to contain a greater quantity of water than the animal has immediate occasion for, where it remains without either being corrupted or adulterated by the other aliments. When the Camel finds itself pressed with thirst, it here finds an easy resource for quenching it; and throws up a quantity of this water, by a simple contraction of the muscles, into the other stomachs, which serves to macerate its dry food. In this manner, as it drinks but seldom, it takes in a large quantity at a time; and travellers, when parched with thirst, have often dispatched this useful animal for the sake of the fluid it was expected to contain.

In Turkey, Persia, Arabia, Barbary, and Egypt, the whole commerce of the natives is carried on by means of Camels; and no carriage is more speedy, nor can any be less expensive. Merchants and travellers unite themselves into a body, furnished with Camels, to secure themselves from the insults of those robbers who infest the countries through which they are to pass. This assemblage is called a caravan, in which the number of itinerants sometimes amounts to upwards of ten thousand, and that of Camels to a still greater number. Each of these animals is loaded according to its strength; and so sensible is the Camel of its own ability, that, if overburdened, it remains on its belly, and refuses to rise till its load is apportioned to its powers. In general, a large Camel is capable of carrying a thousand weight, and sometimes twelve hundred; while the dromedary is sufficiently loaded with six or seven. During these trading journeys they travel but slowly; and their stages, which are generally regulated, amount to about thirty or thirty-five miles a day. Each evening, when they arrive at the place of their destination, which is usually some spot of verdure where water and shrubs abound, the Camels are permitted to feed at large; and on such occasions they eat as much in one hour as is fully sufficient to support them the succeeding twenty-four. They prefer the coarsest weeds to the softest pastures; the thistle, the nettle, the casia, and other prickly vegetables, are their favourite food: but, as all natural supplies of provisions are accidental during these expeditions, their drivers take care to supply them with a kind of paste composition, which serves as a permanent nourishment. As these animals are accustomed to the same tracts, they are said to know their way with precision, and to pursue their journey when their guides are utterly astray; and when they come within a few miles of their usual baiting-place, they saga-

ciously scent it, increase their speed, and often trot with additional vivacity to the end of their stage.

Buffon seems to consider the Camel as the most domesticated of all animals, and to have most marks of the tyranny of man imprinted on its form. He is of opinion that this creature is not now to be found in a state of nature; and that the hump on its back, the callosities on its breast and legs, and even the great reservoir for water, are all marks of long servitude and domestic constraint. These deformities he supposes to be perpetuated by generation; and that what at first was the effect of accident, by degrees became natural. However this may be, it is certain that the hump on the back of the Camel grows large in proportion as it is well fed; and that, if anatomized, it will be found composed of a substance not dissimilar to the udder of a cow.

Nine out of ten male Camels are usually castrated; and though this operation may somewhat enfeeble them, it adds to their patience and docility. The female receives the male in a recumbent posture; she goes with young about a year; and, like all other large animals, produces but one at a time. The milk of the Camel is both abundant and nutritive; and, mixed with water, makes a principal part of the beverage of the Arabians. These animals begin to engender when about the age of three years, and commonly live to forty or fifty. The genital parts of the male resemble those of the bull, but are placed pointing backwards; so that its urine seems to be ejected in the same manner as that of the female: and this, as well as the dung, and indeed almost every part of this animal, is converted to some beneficial purpose. Of the urine, sal ammoniac is made; and of the dung, litter for horses, and fire for culinary uses. Thus this animal alone seems to comprize within itself a variety of qualities, any one of which serves to render other quadrupeds absolutely necessary for the welfare of man. Like the elephant, it is tractable and tame; like the horse, it gives its rider security; carries greater burdens than the ox or the mule; and furnishes milk in as great abundance as the cow. The flesh of the young ones is supposed to be as delicate as veal; the hair is more beautiful, as well as more in request, than wool; and even its very excrements are applied to useful purposes.

The Camel has a small head, short ears, and a long neck, slender and bending. Its height to the top of the hump is about six feet six inches; the colour of the hair on the protuberances is dusky, and that on the other parts is a reddish ash. It has a long tail, small hoofs, and flat feet divided above, but not quite through. On the legs it has six callosities; one on each knee, another on the inside of each fore-leg on the uppermost joint, one on the inside of the hind-leg at the bottom of the thigh, and another on the lower part of the breast.

There are several varieties of Camels: the largest and strongest is called the Turkman; the Arabian is hardy; and what is called the dromedary, mahary, and raguahl, is very swift. The common sort travel about thirty miles a day. Those which have smaller humps, a more delicate shape, and are of an inferior size, are used solely for the purpose of riding, and never carry burdens; some of which, as has been previously observed, are capable of travelling an hundred miles a day. The Camels of Africa are well adapted to that parched and unpropitious climate by the extreme hardness

of their nature; and are capable of performing journeys from Numidia to Ethiopia, over burning deserts, where no other animals could long exist.

CAMEL, ARABIAN. The hair of this species is curled, and longer than that on other animals of this kind, except on the bunch; and the hair on the back is different from that on the other parts, being grey and coarse, and greatly resembling that on a horse's tail.

CAMEL, BACTRIAN. This animal has two bunches on it's back; but, in all other respects, it resembles the former varieties, and is equally adapted either for riding or carrying loads.

The two-bunched Camel is still found wild in the deserts of the temperate parts of Asia; particularly in those between China and India; and these are more large and generous than the domesticated race.

The Bactrian Camel, as it is called, is very common in Asia, and is much used among the Tartars and Mongols as a beast of burden.

CAMEL, CHINESE. This variety is remarkable for it's fleetness, and is therefore called by the expressive name of Fong Kyo Fo, or Camels with feet of the wind. It has two bunches, covered with long hair; the neck is short and thick; and the hair is thick, and as long as that of goats, being sometimes of a brownish yellow colour, and at others reddish, with an admixture of black.

This species of Camel being an exotic, is very rare in Arabia; and is accordingly in the possession only of men of opulence.

CAMEL, LLAMA. This animal, which may be considered as the Camel of the new world, is considerably smaller than that of the old. It stands high on it's legs, has a very long bending neck, a small head, fine black eyes; and, like the Camel, is mild, gentle, patient, and tractable. It's height is about four feet; and it's length, from the neck to the tail, is about six. Some of them are white, and others black; but they are in general brown.

According to the editor of Byron's Voyage, the shape of the Llama exactly resembles that of a Camel, except that it wants the bunch on it's back. It is the most useful animal of Peru and Chili, and was the only beast of burden known to the Indians previous to the arrival of the Spaniards. Before the introduction of mules, they were used by the Indians in plowing their lands; and at present they are employed in carrying burdens not exceeding an hundred weight. They move with a gravity not badly expressive of the disposition of their Spanish masters; and, like them, cannot be prevailed on to alter their pace. They lie down in order to be loaded; and, when weary, no blows can provoke them to proceed. Feuillée says, they are so capricious, that if their drivers strike them, they immediately squat down, and nothing but caresses can induce them to rise. Between the breast and the belly of this animal there is a kind of bunch, from which a kind of matter frequently oozes.

This animal is more temperate than even the Camel of the old world; and, of all other creatures, seems to have the least occasion for water, nature having supplied it with such large quantities of saliva, that it spits on every occasion; and this saliva seems to be the only offensive weapon with which this harmless creature is furnished, and by which it can express it's resentment. When offended, it falls on it's belly, and pours out against it's adversary a quantity of this fluid, which, if it comes in contact

with the skin, immediately occasions an irritation; and a reddish spot.

The flesh of the Llama Camel is proper for food, being esteemed equal to mutton; but it's wool has a strong, disagreeable scent. It is extremely sure-footed; and is therefore peculiarly serviceable in transporting the Peruvian ores over the most rugged hills and narrowest paths of the Andes.

These animals inhabit that vast chain of mountains which extend to the Straits of Magellan; but, except where those hills approach the sea, they are never found on the coast. In a wild state, they assemble in great numbers in the highest and steepest parts of the hills; and, while feeding, one of them stands as centinel on the pinnacle of some rock; but, on the approach of any person, the animal neighs, and the herd takes the alarm, and runs off with incredible speed. No dogs are fleet enough to overtake them; and they can only be destroyed by means of fire-arms.

As every domestic animal has had it's origin in a wild state, it is extremely probable that the Llama, and another American animal called the guanaco, are the same. The Llama is described as the largest of the two animals the Peruvians have; for, except that, they know no other than the congenious pacos. Two animals similar to those are found wild: the larger, or guanaco, may be supposed to be a savage Llama; and the lesser, or vicunna, to be the pacos in a state of nature; the brief descriptions procured of each leaving little room to doubt that the difference of colour and hair arises only from culture.

CAMEL, PACOS. This animal is covered with long and very fine wool of a dull purple colour, and has a white belly; but, in a domestic state, the colour varies. It's shape somewhat resembles that of the llama, but it is considerably less. It is of the same nature with that animal, and inhabits the same places; but is more capable of supporting the rigours of frost and snow. These creatures herd together in vast numbers; they are very timid, and excessively swift; and sometimes the guanacos associate with them.

The Indians take the Pacos in a very singular manner. They tie cords, having bits of wool or cloth hanging to them, about three or four feet from the ground, across the narrow passes of the mountains, and then drive the animals towards them, which are so terrified by the flutter of the rags, that they dare not attempt to pass, but, huddling together, give the hunters an opportunity of killing with their slings as many of them as they please.

The Pacos yields bezoar stones; and Waser informs us, that he has taken thirteen out of the stomach of a single animal; that they were ragged and multiform, some round, some oval, and others long; and that their colour was at first green, but afterwards changed to cinereous.

CAMELEON. A little animal of the lizard species, having a short round incurvated tail, and two or three toes joined together; which has long amused the ignorant, and furnished matter of speculation to the philosopher.

This little animal, like the crocodile, proceeds from an egg; and also nearly resembles that formidable creature in it's form, but essentially differs from it in it's magnitude and appetites. It is seldom above eleven inches in length; and generally sits on the branches of trees, being afraid of serpents, from which it is unable to escape when on the ground. The head of a large Cameleon is almost

most two inches long, and from thence to the beginning of the tail four and a half; the tail is five inches long; and the feet two and a half. The thickness of the body is various at different times; for sometimes, from the back to the belly, it is two inches, and sometimes but one, it being possessed of a power of inflating and contracting itself at pleasure; and this inflation and contraction not only extends to the back and belly, but also to the legs and tail. These tumefactions, however, do not proceed from a dilatation of the breast in breathing, which rises and falls by turns, but are very irregular, and seem merely adopted from caprice. The Cameleon often appears blown up, as it were, for two hours together; after which it insensibly grows less and less, the expansion being always quicker and more perceptible than the contraction. In the contracted state, the animal appears extremely lean; the spine of the back seems sharp; all the ribs may be numbered; and the tendons of the arms and legs may be seen very distinctly. This method of inflating itself is similar to that in pigeons, whose crops are sometimes greatly distended with air. The Cameleon possesses the faculty of driving the air it breathes over every part of its body; but it only gets between the skin and the muscles, for the latter are never swollen. The skin is very cold to the touch; and though the animal appears to be very lean, it is impossible to feel the pulsations of the heart. The surface of the skin is unequal, and has a grain not unlike shagreen, but very soft, each eminence being as smooth as if polished. Some of these protuberances on the arms, legs, belly, and tail, are as large as the head of a pin: but, on the shoulders and head, they are of an oval figure, and somewhat larger; and those under the throat are ranged, in the form of a chaplet, from the lower lip to the breast. When the Cameleon is at rest in a shady place, the colour of all these eminences is a blueish grey, and the spaces between them are of a pale red and yellow.

But the most astonishing circumstance relative to the history of this animal takes place when it is exposed to the beams of the sun. At first, it appears to suffer no change of colour, its greyish spots still continuing the same; but the whole surface soon appears to imbibe the rays of light; and the simple colouring of the body changes into a variety of beautiful hues. Wherever the light falls on the body, it is of a tawny brown; but that part of the skin on which the sun does not shine changes into several brighter colours, such as pale yellow, or vivid crimson, which form spots of half the size of a finger, some of them descending from the spine half way down the back, and others appearing on the sides, arms, and tail. When the sun ceases to shine, the original grey colour returns by degrees, and covers all the body. Sometimes the animal becomes all over spotted with brown of a greenish cast; and, when wrapped up in a white linen cloth for two or three minutes, the natural colour becomes much lighter, but not entirely white, as has been pretended by some naturalists: however, from hence we must not conclude that the Cameleon assumes the colours of the objects it approaches; this being an error which probably originated from the continual changes it appears to undergo.

An ample description of the Cameleon is given by Le Bruyn in his *Voyage to the Levant*. During his abode at Smyrna, he bought several of them; and, in order to try how long they would

live, kept four of them in a cage, permitting them at times to range the house. The fresh sea-breeze seemed to give them great spirit and vivacity, and they opened their mouths to admit it; but he never saw any of them eat, except now and then a fly, in swallowing of which the creature employed not less than half an hour. He observed that their colour changed three or four times successively, but without being able to assign any cause for such alteration: their common hue he found to be grey, or rather a pale mouse; but its most frequent change was into a beautiful green spotted with yellow. Sometimes also the animals were marked all over with dark brown; and this often changed into a lighter hue: some colours, however, they never assumed, and that of red he found to be among the number. Notwithstanding his utmost care, our traveller was unable to preserve any one of these animals alive above five months, and some of them died in four.

When the Cameleon changes its place, and attempts to descend from an eminence, it moves with the utmost precaution, advancing one leg very deliberately before the other, but still securing itself by holding whatever it can grasp by means of its tail. It seldom opens its mouth, except for fresh air; and, when that is supplied, it discovers great satisfaction by its motions, and the frequent changes of its colour. The tongue, which is as long as the whole body, is sometimes darted out after flies, the creature's usual food. The eyes, though they project from the head, are remarkably small; and they have a single eye-lid, like a cap, with a hole in the middle, through which the sight appears, of a shining brown colour, and round it there is a little circle of a golden hue. But the most extraordinary circumstance in the conformation of the eyes is, that the animal often moves the one, while the other is entirely at rest; nay, sometimes one eye will seem to look directly forward while the other looks sideways; and one will look upwards while the other regards the earth.

Naturalists are not agreed either as to the manner or reason of the Cameleon's change of colour. Seneca, and some others, assert, that it is effected by suffusion; Salinus and others, by reflection; and the Cartesians, by the different disposition of the parts composing the skin, which give a different modification to the rays of light. Kircher ascribes the change of colour in the Cameleon to the power of imagination in the animal, because it loses it when dead. Others, and particularly Dr. Goddard, ascribe the change to the grains of the skin; which, in their various postures, he thinks may exhibit several colours; and, when the creature is in full vigour, may have, as he terms it, *rationem speculi*; that is, the effect of mirrors; and reflect the colours of adjacent bodies.

As the Cameleon possesses the faculty of filling its skin more or less, it is not only capable of altering the tone and texture of the fibres, on which the reflective quality in a great measure depends, but also of bringing parts into view which before lay concealed, or of concealing such as before lay open: and it is highly probable that the parts which are in general covered, are of a somewhat different colour from those constantly exposed to the action of the air.

On the above principles, perhaps, all the phenomena in the Cameleon's colour may be solved. The animal, it is evident, possesses the power of reflecting different-coloured rays from the same parts;

parts; and also of making certain parts reflect, and of preventing others from reflecting; and hence that variation, that medley of colours.

The Cameleon, however, is not the only animal possessed of the property of changing its colour. Grew mentions a sort of lizard, which, when swelled with rage, changes its colour from green to a kind of russet: and a similar account is given of the *naque mousche*, an insect peculiar to the island of Nevis, in the West Indies; several varieties of which curious animal are described by naturalists.

CAMELEON, MEXICAN. This animal is of a very singular shape, the back being crooked, and the body thick. The head is adorned with a crest, or triangular bony crown, bordered with small tubercles like so many pearls, some of which also appear on the nose and forehead. The breast, as well as all the under parts of the body, seem to be beset with a kind of serrated teeth, reaching as far as the tail, which is curled at the extremity. The back and belly are of a dark ash-colour; but the sides are of a pale yellow ash, and covered with small round reddish scales. The female generally carries her tail turned upwards like a pug-dog; but that of the male is less curled.

CAMELEON, AMBOYNA. The tail of this species is turned upwards. It has a sort of crown on its head quite different from that of the former, resembling a kind of capuchin: this crown is pretty flat, and covered with scales which have the appearance of pearls, as well as the throat and the rest of the body; but in these parts they are much smaller. The eyes are pretty large, and surrounded with a ring; the spine of the back and the tail are arched and round; and the vertebræ may easily be perceived. The body is covered with small scales of a brownish ash-colour; but those on the head, legs, and tail, are somewhat lighter.

CAMELEON, CEYLONESE. This species is of a saffron-colour; and all the scales rise like pearls, which, on the upper part, are pretty resplendent. The crest or crown is covered with large convex scales, very curiously bordered with round buttons; the snout is very large and blunt; the throat is also large; and the tongue, which is long, is thrust out a great way. The under part of the body, from the lower jaw to the vent, is full of small teeth or prickles, formed like a saw. Like the ant-eater, it subsists on ants, which affix themselves to its tongue when thrust out.

CAMELEON, AFRICAN. This animal is blackish, but the teeth or prickles on the back are whitish. It is the largest of the kind. Its tongue, when protruded, resembles that of a neat turned upside down, being flat and rough beneath. The prickles are extremely white, and surrounded with a blackish streak. The upper part of the body, the head, and the tail, are painted with a bright ash-colour of a flamiform appearance; the legs are long and slender; and the feet, which are thick, consist of five toes, at the ends of which are small sharp crooked claws.

CAMELEON OF THE CAPE OF GOOD HOPE. This creature is mottled with white and blue, and the greatest part of the tail is of a bright ash-colour. The crest is flat, oblong, and dentated at the edges, extending from the point of the snout to the neck, where it is folded like the collar of a coat. It is said to assume the colours which are nearest it; appearing blue, yellow, and green, alternately.

CAMELITA. Another appellation for the bison.

CAMELOPARD. A singular kind of animal, which seems properly to belong to no known class of quadrupeds, but to be perfectly sui generis. It is called *camelopardalis* by Latinists, and *giraffa* and *zurnapa* by oriental nations. Linnaeus makes it a species of the *cervus*, or stag kind, with simple horns and very long fore legs; and Pennant makes it a species of goat.

It is not easy to form an adequate idea of the size of this creature, and the oddity of its figure. It somewhat exhibits the slender shape of the deer, or the camel; but is destitute both of their symmetry and easy power of motion. The head bears some resemblance to that of the deer, having two round horns about six inches long, and which it probably sheds every year. Its neck resembles that of a horse; and its legs and feet those of a deer, but with this extraordinary difference, that the fore parts are near twice as long as the hinder. As this creature has sometimes been found eighteen feet in height, and ten from the ground to the top of the shoulders; so, allowing three feet for the depth of the body, seven feet remain, which is a height sufficient to admit a man mounted on a middle-sized horse. The hinder part, however, is much lower; so that when the animal is in a standing posture, it has somewhat the appearance of a dog sitting; and this peculiar formation of its legs gives it an awkward and laborious motion, which, though swift, must nevertheless be tiresome. For this reason, the Camelopard is very rarely found, and only finds refuge in the most internal deserts of Africa. The dimensions of a young one, as they were accurately taken by a person who examined its skin, which was brought from the Cape of Good Hope, were found to be as follow: the length of the head was one foot eight inches; the height of the fore-leg, from the ground to the top of the shoulder, was ten feet; from the shoulder to the top of the head, seven; that of the hind-leg was eight feet five inches; and, from the top of the shoulder to the insertion of the tail, it was exactly seven feet long.

No animal, either from its disposition or formation, seems less fitted for a state of natural hostility than the Camelopard. Its horns are blunt, and even knobbed at the ends; its teeth are entirely formed for vegetable pasture; its skin is beautifully speckled with white spots on a brownish ground; it is timid and harmless; and, notwithstanding its vast size, rather flies from than resists the most insignificant enemy. It greatly partakes of the nature of the camel, which it likewise nearly resembles. It lives entirely on vegetables; and, when grazing, is obliged to spread its fore-legs very wide, in order to reach its pasture. Its motion is a kind of gallop, two legs on each side moving at the same time; whereas, in other animals, they move transversely. It often lies down on its belly; and, like the camel, has a callos substance on its breast, which, when reposing, defends it from injury.

This animal was known to the ancients, but has very rarely been seen in Europe. When ancient Rome was in its splendour, Pompey exhibited no less than ten of them at once on the theatre. It was a barbarous pleasure peculiar to the people of those times to see the most ferocious, as well as most extraordinary animals, produced in combat against each other: the lion, the lynx, the tyger, the

the elephant, and the hippopotamos, were all let loose promiscuously, and inflicted indiscriminate destruction.

The last Camelopard recorded to have been seen in Europe, was sent from the East to the Emperor of Germany, in 1559: however, these animals have often been seen tame at Grand Cairo in Egypt, though the race is far from being numerous.

The Greeks called this animal *Camelopardalis*; because, as they supposed, it was generated between a camel and a leopard.

CAMURI. A sea-fish of the *lupus* or bass kind, common in the seas and larger rivers of America. It grows to about two feet in length, and one foot in thickness. The head is monstrously large, and the mouth extremely wide. It has a large strong fin on it's back, armed with sharp prickles; and a furrow in the back behind it, into which the fish can occasionally lay it down. It's sides are yellowish; it's belly is white; it's fins are of a brownish yellow-colour; and it's side-lines, which run from the gills to the tail, are broad, and of a fine black.

CANALIS. See *TUBULUS MARINUS*.

CANARY BIRD. This bird, which is of the size of a titmouse, has a short bill, thick at the base, and of a whitish colour. It has now become so common, and continued so long in a domestic state, that it's native habits, as well as it's native country, seem almost forgotten. Though, from the name, it appears that these birds came originally from the Canary Islands, we now have them from Germany only, where they are bred in great abundance, and exported to different parts of Europe. At what period they were introduced into this quarter of the world, is not well ascertained; but it is certain that, about a century ago, they were sold at very high prices, and kept only for the amusement of the great: they have, however, since multiplied in great abundance; and their prices have diminished in proportion to their numbers. In their native islands, a region equally celebrated for the beauty of it's landscapes and the harmony of it's groves, the Canary Birds are of a dusky grey-colour, and so very different from those usually seen in Europe, that some naturalists have even doubted whether they are of the same species. With us, they have that variety of colouring common to all domestic fowls; some being white, others mottled, and some beautifully shaded with green: but they are more esteemed for their notes than their beauty, having high, piercing pipes, as indeed all those of the finch tribe have, continuing for some time in one breath without intermission, then raising it higher and higher by degrees, with great variety of execution. This quality has rendered the Canary Bird, next to the nightingale, the most celebrated songster; and as it is more easily reared than any of the soft-billed birds, and continues it's song throughout the year, it is the most common tenant of our rooms. Rules have been laid down, and copious instructions given, for breeding these birds in a domestic state; which, as they partly elucidate their natural history, are here subjoined.

In chusing Canary Birds, those are preferable which appear with life and boldness, standing upright on their perches, like sparrow-hawks, and not apt to be frightened at every noise. If their eyes look chearful and bright, it is a sign of health; but, on the contrary, if they hide their heads under

their wings, and gather up their bodies, these are symptoms of their being disordered. The melody of the song should also be regarded in making a selection; for some will open with the notes of the nightingale, and, after running through a variety of modulations, end like the tit-lark; others, again, will begin like the sky-lark, and, by soft melodious turns, fall into the notes of the nightingale. There are lessons taught this bird in it's domestic state, and generally borrowed from others; but it's native note is loud, shrill, and extremely piercing.

Canary Birds sometimes breed all the year round; but they most usually begin to pair in April, and to breed in June and August; and those are said to be the best breeders which are produced between the English and the French.

Towards the end of March, a cock and a hen should be put together in a small cage, where they will betray signs of animosity at first, but will soon become perfectly reconciled. The room where they are kept to breed should be so situated as to let the birds enjoy the morning sun; and the windows should be constructed of wire rather than glass, that the air may have free access. The floor of the room should be kept clean; and sometimes dry gravel, or sifted sand, should be sprinkled over it. In the cage likewise should be two windows, one at each end; and several perches, at proper distances, for the birds to settle on, as they fly backwards and forwards. A tree in the middle of the room would be most convenient to divert the birds, and would sometimes serve for the purpose of building their nests.

In Germany, where the breeding of these songsters forms the occupation of numbers, they build a large room in the manner of a barn, with a square place at each end, and several apertures to these apartments. In these they plant several sorts of trees, in which the birds take great delight to sing and breed. The bottom of the place they strew with sand; and on it strew rape-feed, chickweed, and groundsel, on which the old birds feed while breeding. In the body of the house they place all sorts of stuff fit for building the nests; and brooms, one under the other, in all the corners, for the birds to build in. These they separate by partitions from each other, to prevent those above flying down on, or otherwise incommoding, those which breed below. The light is also excluded, no bird being fond of it too full on it's nest.

With us, however, the apparatus is much less expensive; a breeding-cage often suffices; and, at most, a small room without any particular preparation. While the birds are pairing, it is usual to feed them with soft meat; that is, bread, maw-feed, a little scalded rape-feed, and about the third part of an egg. The apartment should be furnished with stuff proper for constructing the nests, such as fine hay, wool, cotton, and hair. These materials should be perfectly dry, and then mixed and tied together in such a manner that the birds may easily pull out what they want. This should be hung in a proper part of the room; and the male will be found to take his turn in building the nest, sitting on the eggs, and feeding the young. They are generally two or three days in completing their nests; the hen commonly lays five eggs, and in the space of fourteen days the young are excluded. So prolific are these birds, that the female will sometimes be ready to hatch a second brood before the first are able to quit the nest. On such occasions, she leaves the nest and the young, in order to provide

vide another habitation for her new brood. In the mean time, the male, more faithful to the duties of his trust, breeds up the offspring left behind, and fits them for a state of independence.

When the young are excluded, the old ones should be supplied with a sufficiency of soft food every day; and likewise with fresh greens, such as cabbage, lettuce, and chickweed; in June with shepherd's purse, and in July and August with plantain. They ought never to have groundsel after the young are removed. With such delicacies the old ones will be sedulous in feeding their young brood; who, when arrived at a sufficient age, feed themselves, and are put into cages. Their meat then is the yolk of an egg boiled hard, with an equal quantity of fine bread, and a little scalded rape-feed, which must be bruised all together till they become fine, and then mixed with a little maw-feed; after which, all may be blended in a mass, and the birds supplied with a fresh quantity daily.

Canary Birds are apt to be disordered either through colds, or by feeding too much on vegetables unmixed with feed. This may be discovered by blowing up their belly-feathers; for if their bellies be swelled, transparent, and full of red veins, with the bowels sunk down to the extreme parts of their bodies, they are certain signs of indisposition. When these parts appear black, their complaints frequently prove mortal: in such cases, however, the birds must be kept warm; and oatmeal should be mixed among their feed for three or four days, with liquorice in their water; but if the habit of the birds be too lax, maw and bruised hempseed should be given them, with saffron in their water; or milk and bread, with a little maw-feed intermixed.

Another distemper which frequently affects Canary Birds, is a little pimple in the rump called the pip: this will generally vanish of itself; but when it does not, it should be pricked when ripe, for the purpose of discharging the matter lodged in it; after which, a bit of loaf-sugar, moistened in the mouth, should be applied to the sore.

A third disease incident to Canary Birds consists of a sort of yellow scab about the head and eyes, which sometimes swells, and is filled with matter. In such distemper, the part affected should be anointed with fresh butter, lard, or oil of sweet almonds; either of which will effect a cure.

The moulting-time may be known by the birds appearing rough, melancholy and sleepy, and often putting their heads under their wings; besides which symptoms, the bottoms of their cages will be covered with down, or small feathers. At this time they should be kept warm, and placed in the sun, in fine bright weather. Their food should consist of Naples biscuit, bread, and egg, mixed together, with saffron in their water; and also bruised hempseed mixed with lettuce and maw-feed. If the season be very hot, the birds should have liquorice instead of saffron; and their food should be plantain and lettuce-feed.

The Canary Bird, when kept in company with the linnet or goldfinch, pairs, and produces a mixed breed, but more like the Canary Bird, and resembling it principally in its song. Indeed, all this tribe, with strong bills and piercing notes, and feeding on grain, have the strongest similitude to each other; and may justly be supposed, as Buffon imagines, to come from the same original. They all breed about the same time; they frequent the

same vegetables; they build in the same hedges and trees; and are brought up for the cage with the same food and precautions. The linnet, the bullfinch, and the goldfinch, when once we know the history of the Canary Bird, have few peculiarities which can either attract our curiosity or require our care. The only art necessary to be practised towards all those birds which have no natural fine note, is to breed them up under some more pleasing harmonists. The goldfinch acquires a more melodious note from the nightingale; and the linnet and the bullfinch may be taught to whistle long and regular tunes.

CANAVAY. A Philippine sea-bird, about the size of a pigeon, which lays its eggs on the naked rocks, where it sits and hatches them. Some naturalists have supposed this bird to be no other than the common king's fisher; but this is scarcely probable, as we have no accounts of the beauty of its colours, which being so very remarkable in that class of birds could hardly have escaped observation. It is much more probably some aquatic bird wholly unknown in this part of the world.

CANCELLUS; in English, the WRONG HEIR. A very small species of cray-fish, which the French call hermit, or St. Bernard the hermit, because it shuns other fish, and retires into the first shell it can find. Its body is somewhat long, but in general bears a strong resemblance to that of a spider, except that it is a little thicker. It is found in slimy places near rocks, commonly enveloped in a shell as big as a nut, of a conic figure, thick, very hard, rugged, furrowed, and externally grey, but internally white and smooth. This shell is so well adapted to the animal, that it is difficult to force it from its inclosure: some, however, wash, dress, and eat it. It contains abundance of volatile salts, and acts both as an aperient and dissolvent. An oil extracted from it is imported from America, and used in rheumatic cases.

In the American islands there is found a much larger species of Cancellus, being three or four inches long. It is called the soldier, because it possesses, and fortifies itself in, an extraneous shell. As its natural covering leaves its hinder parts naked, it employs itself, as soon as it has acquired sufficient strength, in searching out another proportioned to its size, into which it thrusts its posteriors, and adjusts itself; but, when it grows larger, and finds itself confined, it is obliged from time to time to go in search of other shells. To the curious, it is amusing enough to observe how this animal stops at all the shells it meets with, in order to consider them; and, whenever it finds one fit for its purpose, how it quits its own, and crowds into its new tenement with precipitation, as if ashamed of being naked: and if two of these creatures are stripped at one time, for the purpose of entering the same shell, they fight till the weakest is compelled to submit.

The inhabitants of the American coasts fish for them, string them up by their heads, and expose them to the sun, which melts all except their solid parts. The dissolved substance, or oil, is esteemed excellent in rheumatisms, to which the natives are very subject.

CANCER. The classical name for the crab.

CANCROMA. A genus of birds of the order of grallæ; having gibbous beaks, and their upper mandibles shaped like boats turned upwards. Linnæus reckons two species, the cochlearia, and the

the cancropphaga; the former is found in Guiana, and the latter in the Brazils.

CANDELARIA. A species of insect belonging to the genus of fulgora, and the order of hemiptera in the Linnæan system.

CANICULA. An appellation used by Pliny and other historians to express the fish called lamia by the Italians. It is the galeus canis of authors; and, in Cornwall, is called the tape. Artedi makes it a species of squallus, with the nostrils placed near the mouth, and small foramina near the eyes.

The term Canicula is also applied by Aristotle, (and, since him, by Rondeletius, Aldrovandus, and others) to signify the catulus.

CANINANA. An American serpent, esteemed one of the most inoffensive kind. It grows to the length of two feet; and is green on the back, and yellow on the belly. It feeds on eggs and small birds. The natives cut off the head and tail, and eat the body as a peculiar delicacy.

CANINUS SERPENS. A name given by some naturalists to the mauballa of the Ceylonefe, a snake which flies at every object that comes in its way with the fury of an incensed dog.

CANIS. In the Linnæan system of zoology, a distinct and very large genus of animals of the order of feræ, and class of mammalia, including all the dog kind; which this celebrated naturalist only accounts for many varieties and distinct species.

The characters of this genus are; that the several species have six upper fore-teeth, the lateral ones being longest, and the intermediate ones of a lobated figure; that there are also six fore-teeth in the lower jaw, of which the lateral ones are lobated; that the canine teeth are single and incurvated; and that the grinders are six or seven in number.

The species belonging to this genus are: the common dog; the wolf; the hyæna; the fox; the alopecurus; the lagopus; the jackall, or lupus aureus; the Mexican dog, or American mountain-cat, with the tail bent downwards, and an ash-coloured body variegated with brown and yellow spots; and the thous.

CANIS CARCHARIAS. A name given by Rondeletius, and other authors, to that species of shark called the lamia, or white shark; and, by others, carcharias lamia.

CANIS GALEUS. A large fish of the shark kind. It has three rows of very sharp teeth; the eyes are disproportionably small; and the irides are of a fine bright silver-colour, with a cast of blue or green. It is caught on the Cornish coasts; and is so extremely fond of human flesh, that it will even venture to leap on shore, in order to acquire it.

CANIS VOLANS. An animal of the bat or vespertilio kind; distinguished by Linnæus under the appellation of vespertilio cauda nulla, the bat without a tail.

CANKER-WORM. See *SCHARABÆUS*.

CANNEVAROLA. A name given by Aldrovandus, and some other naturalists, to the lesser reed-sparrow; called by others ficedula cannabina; and, by Ray, passer arundinaceus minor.

CANOSA. An appellation given by Salviati to the fish called by others canis galeus and mustelus levis.

CANTHARIS. An insect of the beetle kind, from whence proceed Cantharides, well known in medicine by the name of Spanish flies, and for their use in blisters. They have feelers like bris-

les; their wings have flexible cases; their breasts are pretty plain; and the sides of their bellies are corrugated.

Cantharides differ from each other in their size, shape, and colour: the largest are about an inch long, and as much in circumference; while others are not above three-quarters of an inch. Some are of a pure azure colour, others of a pure gold, and some of a mixture of pure gold and azure: however, they are all very brilliant, and extremely beautiful.

This insect consists of four parts; namely, the head, the neck or breast, the body, and the belly. The head is small in proportion; but the mouth is pretty large; and there are teeth in the jaws, having two sorts of articulated pincers, with which it grasps its food, and conveys it to its mouth. In the forehead there are two eyes of a golden colour, and a little prominent; and under them there are two horns, or feelers, like bristles, pretty long, and moveable by means of twelve equal articulations, the last of which terminates in a point. The top of the head, which rises in a bump, is extremely smooth and polished, and divided into two parts. Instead of a chin, there is a beard; and the breast is formed of a single plate, behind which there are a kind of lungs; and it is connected below to the first pair of feet, which are each composed of three parts nearly of the same length, of which the last has five knotted joints, terminated with two crooked claws. The cases of the wings are membranaceous; connected to the breast; and, as it were, shagreened: they are convex above, and hollow beneath; thin, but strong, and covering the upper-part of the body, to which the two last pair of feet are connected. The belly consists of six large rings, which are smooth, and folded at the sides. The body, properly so called, is composed of eight moveable rings, furrowed from end to end. The animal is seemingly destitute of hair; but, if examined with microscopical minuteness, it will be found somewhat hairy, especially in the under-part.

The cantharides are bred from worms shaped almost like real caterpillars. They are chiefly natives of Spain, Italy, and Portugal; but, in the summer season, are also to be met with near Paris on the leaves of the ash, the poplar, and the rose; as well as among wheat, and in the meadows. It is very certain that these insects are so very fond of ash-leaves, that they will sometime strip those trees entirely bare. Some naturalists affirm, that they delight in sweet-scented herbs; and it is evident that they are partial to the honeysuckle, lilac, and wild-cherry shrubs; but they are said to possess a rooted aversion to elder-trees, nut-trees, and wheat.

The country people, it is said, expect the return of these insects every seven years; that at those seasons such numbers of them have been seen flying in the air, that they appeared like swarms of bees; and that their smell was so very offensive, as to be perceptible at a considerable distance, especially about sun-set. This disagreeable scent, however, is a guide to those whose business it is to catch them; and, when caught and dried, they become so light, that fifty of them will hardly weigh one drachm.

Those persons who collect these insects tie them either in a bag, or a piece of linen cloth that has been well worn, and then kill them with the steam of hot vinegar; after which they are dried, and kept in boxes. The flies, thus dried, being chymically analyzed,

analized, yield a considerable quantity of volatile caustic salt, mixed with a little oil, phlegm, and earth.

Cantharides are penetrating and corrosive; and, when applied to the skin, raise blisters from which proceed a great deal of serous matter. They are used both internally and externally: however, they ought to be prescribed with caution, as their effects fall very violently on the urinary passages; and, in many cases, have proved mortal, either through the wantonness or injudiciousness of the prescriber.

Though several authors have endeavoured to account for the effects of Cantharides on the human frame, we are still in the dark; for all they have said on the subject amounts to no more than this, that they universally affect the urinary passages, in a manner which may be very scientifically described, but very obscurely comprehended.

Linnaeus takes notice of ten different species of Cantharides; the first of which he calls the female Cantharis without wings, which is usually found on the juniper-tree. He informs us that, though he has never yet seen the male, he does not doubt that there is one, because the female shines in the dark; as he thinks, with an intent to discover herself to the male. This seems to be the same as the glow-worm; and confirms, in some measure, what Dale has advanced concerning it.

CANTHARIS, with a red breast and blackish cases to the wings. This species is very large, being above an inch and a half long, and a quarter of an inch in diameter. It is softer to the touch than most other insects of the beetle kind; and has a flatish head and back, except under the eyes. The mouth is small and forked; and the feelers are very short and small; but there are others half the length of the body, consisting of eleven joints, reddish near the base, and brown in every other part. The breast is depressed behind, and cordiform; but the edges are somewhat prominent; the whole being of a reddish colour, except a black spot on the upper part, close to the head. The cases of the wings are plain, smooth, and oblong, but very soft and flexible, and of a brownish-black colour. The body is brown, except the last joint, which is reddish; a tinge of the same colour runs along the sides, which are compressed; and the joints, which are in a manner folded over each other, are covered with a sort of pimples. This species of Cantharis is common about houses in the country, and under hedges.

CANTHARIS, red-breasted, with red cases to the wings. This species is small. The body is black; and the cases of the wings, as well as the breast, are of a bright elegant red, except that there is a black spot on the latter. The feelers are slender; the cases of the wings are soft, silky, and flexible; and the wings are thin, and of a brown colour. This insect is not very common.

CANTHARIS, with black cases to the wings, marked with two red transverse lines. This insect is not larger than a louse. The legs and feelers are black; the head and breast are of a greenish colour; the cases of the wings are of a deep glossy black, marked with two transverse red streaks, one of which is near the base, and the other near the point or extremity; and the sides of the body are reddish. This species is frequently found in pasture-grounds, and under hedges.

CANTHARIS, with testaceous cases to the wings, and a red breast. This insect, which is very common, resembles the last species in every respect, ex-

cept the colour of the cases of the wings, which are of a pale yellow. The breast is destitute of spots, and the eyes are black.

CANTHARIS, with black cases to the wings, and a red breast marked with a white spot. This species, which is called the tree-beetle by some naturalists, is of a blackish-brown colour; and the cases of the wings are slender.

CANTHARIS, with red cases to the wings, and a red breast marked with a black spot. This creature is found in various places, and sometimes among heaps of iron ore. The body is entirely black; the feelers are very slender; the cases of the wings are of a deep red, or saffron-colour, slightly streaked; but the wings themselves are brown.

CANTHARIS, green copper-coloured, with the cases to the wings externally red. This insect, which is of a middling size, is found on nettles, and some other plants. The head, breast, feelers, rings of the belly, and the lower part of the cases of the wings, as well as their interior edges, are of a greenish copper colour; but the extreme part of the cases of the wings, as well as the sides, are red, and the remainder of a greenish copper colour; but the wings are brown.

CANTHARIS, of a greenish copper colour, with red tips to the cases of the wings. This insect is small. The wings are of a blackish brown; and the feelers are entirely black. The breast, head, and cases of the wings, are of a deep green-colour, inclining to copper, with red or saffron-coloured points. The belly is longer than the cases, and, underneath, of a copper colour; but the wings are internally red. This species, however, varies with respect to the cases of the wings, which are sometimes blue, and at others red.

CANTHARIS, with black cases to the wings, marked with two red streaks. The head and breast of this insect, which is no larger than a louse, are green.

CANTHARIS, with black cases to the wings, yellow points, and a black breast. This species is likewise of the size of a louse; but the head and breast are entirely black. The tips of the cases of the wings are of a yellow sulphur colour; and the sides of the belly are of a bright yellow.

CANTHARIS, brown, with the cases of the wings yellow at the points, and a red breast. This species is very small. The breast is of a rusty red colour, with a black spot; the cases of the wings, which are brown, scarcely reach half way down the belly; the thighs are black; the legs are pale; and the segment on the belly is yellow on the edges.

CANTHARIS, black, with livid cases to the wings. This is the most minute insect of the kind, and is only found on plants.

CANTHARUS. A sea-fish nearly resembling the sparus and sargus in shape, but of a darker colour, and covered with small scales, without the annular black spots which these fishes usually have near their tails. It is common in the Mediterranean sea; and is frequently brought to market at Rome, where it is esteemed a well-tasted fish.

The Cantharus of antiquity is called by Artedi the silver-eyed sparus, with longitudinal and parallel yellow lines on each side. Gaza gives this fish the appellation of *scharabæus*.

CANUTI AVIS. See TRINGA.

CAOUANNE. A species of tortoise which bears a strong resemblance to the jurucua of the Brazilians;

Brazilians; but the shell is thicker; and the flesh ill-flavoured, harsh, tough, and stringy.

CAPELAN. A name given by some naturalists to a small species of whiting, called by the Venetians *matlo*; and, by authors, *afellus omnium minimus*, and *merlangus*.

CAPELLA. See **LAPWING**.

CAPERCALZE. A provincial name for the cock of the wood.

CAPIBARA. Another name for the *cabiai*, or water-hog.

CAPIDODIUS. An appellation given by Paulus Jovius, and some others, to the fish called the *grampus* and *orca*. According to the Artedian system, it is a species of dolphin; and is distinguished by that author under the name of the dolphin with the snout bending upwards, and with broad serrated teeth.

CAPITO. This river-fish, better known by its English name, the chub, is also called *cephalus*, *squalus*, and *cyprinus*; and, in some places, the *chevin*. It is longer-bodied than the carp; its head is black, large, and somewhat flat; it is entirely destitute of teeth; its tail is forked; and all its fins are of a blueish black colour. It generally lodges under the coverts of old stumps of trees and hollow banks, and affords much diversion to the angler. It spawns in May, and is in the highest perfection in April; but is never esteemed a very delicate fish.

Capito is also a name erroneously given by some authors to the *mugil* or *mullet*. *Gaza* seems to have given rise to this mistake, by translating the word *Cephalus* from Aristotle by the term *Capito*, without considering that he confounded this fish with another.

CAPITO CÆRULEUS. A fish common in the Danube and other large rivers of Germany; and frequently called the *jentling*.

CAPITO RAPAX. The *piscis corvus* of some naturalists; a fish shaped somewhat like the common chub.

CAPO. An appellation given by Paulus Jovius to the fish called *coccyx* by the ancient Greeks, and *cuculus* by the Romans. It is a species of the *trigla*, distinguished by Artedi under the name of the red *trigla* with a bifid snout and striated coverings to the gills.

CAPON. A cock-chicken, castrated when young, and generally as soon as left by the dam. Capons, besides their use for the table, serve to lead chickens, ducklings, turkey-pouts, pea-hens, pheasants, or partridges, instead of their natural dams; over whom they have several advantages by the largeness of their bodies, which will cover thirty or forty young.

CAPONE. A name given by the Italians to the fish called *hirundo* and *corvus* by authors; and by Artedi considered as a species of the *trigla*. It is distinguished from the rest of this genus by that author under the name of the *trigla* with an aculeated head and with three appendages on each side of the pectoral fins.

CAPPANUS. An appellation given by some authors to the sea-worm which perforates the bottoms of ships, unless they are sheathed with copper.

CAPRA. The classical name for the goat.

CAPRICORNUS. See **MORDELLA**.

CAPRIMULGUS. An anomalous nocturnal bird, not agreeing with any of the rapacious kind, usually found in the Peak of Derbyshire, and other

mountainous places. In Shropshire it is called the *fern-owl*; and, in Yorkshire, the *churn-owl*, from the noise it makes in flying. It is a very beautiful bird; and, both in shape and colour, bears a stronger resemblance to the cuckow than the owl, and is very easily distinguished from all other birds by the structure of its feet and wings. From the point of the bill to the extremity of the tail, it measures about eleven inches. The head is large in proportion; the bill is extremely small, and a little incurvated; the mouth and throat are very wide; the legs are small, and feathered half way down on the fore-side, the feathers depending almost to the toes, which are united from the divarication to the first joint; and the inner edge of the middle claw is serrated, as in herons.

CAPTAIN. A West Indian fish, entirely of a red colour; with only one fin on its back, which is very long when erected, and armed with large prickles: the gill-fins are of the same shape, by means of which it combats other fish. It is pretty much like the carp, being covered with scales like that fish; but it grows to the length of three feet, and is about thirty inches in circumference.

These fish swim in shoals, and ten or a dozen are commonly entangled in the same net. Some of them have been caught of the length of six feet, and thick in proportion, covered all over with spots twice as large as those of a carp. The flesh of the Captain is white, and well tasted.

CAPUENA. A fish caught among the rocks near the shores of the American seas. It generally grows to about five inches in length; is of a long, rounded shape; and is reckoned very delicious.

CAPWARD. A Brazilian animal, so called by the Portuguese, and described as an amphibious creature, with a body like a hog, a head like a hare, and without a tail. It almost constantly rests on its posteriors, like an ape. It lives in the sea in the day-time; and in the night season comes ashore, for the purpose of ravaging gardens. Its flesh is reckoned wholesome.

CARABUS. The name of a genus of four-winged flies belonging to the Linnæan order of *coleoptera*. The antennæ are oblong, slender, and setaceous; and the thorax is somewhat convex, margined, of a cordated figure, and truncated in the hinder-part.

CARACAL. An animal of the feline kind, sometimes called the *syagush*. It is a native of the East Indies; and resembles the lynx in size, in shape, and even in the singularity of being tufted at the ears. The Caracal, however, differs from that animal in the following particulars; that it is not mottled; that its hair is rougher and shorter; that its tail and muzzle are longer; that its physiognomy is more fierce; and that its nature is more savage.

CARACARA. A Brazilian bird of the genus of the hawk, called by the Portuguese *gavicaou*. It is of the size of the common kite, and has a tail nine inches long. The head is like that of the hawk; the beak is black, and hooked; the plumage is tawney, with white and yellow specks; and the feet are yellow, with semicircular long, sharp, black talons. This bird is very destructive to poultry.

CARANGUE. A West Indian white and flat fish, but having, notwithstanding, the eyes placed on each side of the head. It is from two to three feet long, eighteen inches broad, and six thick. The back-fins are very unequal; those on the gills

are pointed, and very near the head; and the tail is forked. These fish are found in great abundance near the Caribbee Islands. Their flesh is exceedingly good, and even preferable to our trout.

CARAPO. An American fresh-water fish, of which there are two species. The first has a long thin body, shaped like the blade of a knife; the back is thick; the belly is thin and narrow; the tail is pointed; the head is flat and pointed; and the lower-jaw extends farther than the upper. The mouth is very narrow; the under-jaw is furnished with very small sharp teeth, but there are none in the upper; the eyes are very small; and the body is covered with scales. The colour is brown, with a faint admixture of red; the back and head are somewhat blackish; and a dusky line runs all along the middle of the sides, under which the fish is speckled with black spots, each of the bigness of a mustard-seed. The usual size of this fish is about one foot in length, and two inches in breadth.

The other species differs very little from the former, except in being narrower in proportion to its length, and destitute of spots; and both are reckoned proper for food.

CARAPOPEBA. A small species of Brazilian lizard, supposed to be of a poisonous nature. The body is of a liver-colour, marked with several white spots; the tail is variegated with white and yellow; and the eyes are remarkably bright and vivid.

CARASSIUS. A genus of leather-mouthed fishes of the carp or bream kind, of which there are three species. It is a small fresh-water fish; about four or five inches long, with a flattened body, and a prominent back. It very much resembles the bream in its shape, but is somewhat thicker. It is of a pale yellow colour, but that of the belly is somewhat deeper than the rest of the body. The mouth is small and round; and the eyes are also small, and sunk in their orbits.

CARASSOW. An American bird, called by some the pheasant of that continent; by the Creoles, the mountain-bird; and, by others, the lesser wild turkey. The head and neck are black, resembling velvet; and there is a high crest of ruffled black feathers, of a semicircular form, with a white streak running through the middle, and parallel to the edges, and which the bird can either erect or depress at pleasure. The rest of the body, except the lower part of the cock, is black; and that of the hen is of a dusky brown. The tail is also black, except four white bars which run across it, near the extremity. The bill is thick in the upper-jaw, where there is a round excrescence as big as a hazel-nut. The eyes are black; the legs are pretty long; and the size of the body is not much less than that of a common turkey. The Carassow is easily tamed; and its flesh is esteemed excellent food.

CARAUNA. A small Brazilian fish, in many respects approaching to the turdus kind. Its colour is a fine bright red, entirely covered with small black maculæ.

CARCAJOU. An animal of the feline tribe, about the size of a badger; having a tail so very long, that it will wrap several times round its body. This creature, which is of a reddish brown colour, is a formidable enemy to rein-deer, waiting whole weeks at a time for its prey, hid in the branches of some spreading tree; and, while the wild rein-deer passes underneath, it instantly drops down on it, and fixes its teeth and claws in its neck, exactly behind the horns. In vain does the wounded animal then attempt to fly; the murderer still main-

tains its former position; and though it often loses a part of its skin and flesh by being rubbed against the trees, it never quits its hold till its prey drops down through fatigue and loss of blood. The deer has but one method of escape, which is by jumping into the water, an element to which the Carcajou has a rooted aversion.

CARCARIAS CANIS. A species of shark.

CARDANES. A small insect resembling the beetle, very soft to the touch, and emitting a fragrant smell. It is of a blackish colour; and is very swift in its motions, having two short wings which do not nearly reach the tail. It is very remarkable, that the tail of this creature is of the same shape with the head; so that, when at rest, it appears as if furnished with two heads.

CARDINAL. A beautiful American bird, which abides in its nest throughout the winter, there subsisting on such provisions as it had collected during the summer, sometimes amounting to the quantity of a Paris bushel, which are artfully deposited, and covered first with leaves, and then with small branches. Two species of this bird have been noticed by naturalists.

CARDINAL, CRESTED. This bird is about the size of a grosbeak. The head is adorned with an upright crest, of a crimson-colour; and the cheeks and lower part of the neck are likewise red. The back and wings are cinereous; the breast and belly are white; the tail is long; the middle feathers are cinereous, and the exterior dusky; and the legs are of a flesh-colour. This beautiful creature is a native of the Brazils, and was first described by Buffon.

CARDINAL, DOMINICAN. This bird is of a moderate size. The upper mandible is dusky, or horn-coloured, and the lower whitish. The eyes are black, and the irides hazel; and the whole head is of a beautiful red or scarlet colour, which reaches down the fore-part of the neck and throat as far as the breast, and terminates in a point. The upper-side of the neck, the back, wings, and tail, are blackish. The quills which fall next to the back are bordered with white, as well as the covert-feathers next above them; the lesser covert-feathers of the wings and back have a small admixture of grey, by which they appear as if fringed; the tail-feathers are edged with white; and the sides of the neck, the breast, and the entire under-side as far as the tail, are purely white. It has four toes, three standing forward, and one backward, but all of a brown-colour. The Dominican Cardinal is a native of the Brazils, and has been described by Marcgrave under the name of the *guiratrira*.

CARDINALITIUS. A name given by some naturalists to the *cocothraustes Indica cristata*, commonly called the Virginian nightingale.

CARDIUM. A genus of worms in the Linnæan system, belonging to the order of testacea.

CARDUELIS. A well-known bird, called in English the gold-finch, and by ancient naturalists *chrysomitres* and *acanthis*; the first from its yellow head, and the last from its feeding among thistles.

CARETTA. See *TORTOISE*.

CARIAMA. A Brazilian bird of the size of a heron; and, like that bird, frequenting watery places. It makes a loud noise like the turkey, and is a species of the *palamadea*. Its flesh is extremely delicious.

CARIBOU. An American animal of the stag kind, chiefly found about Hudson's Bay, though it has been frequently seen in Canada. It is not quite

quite so tall as the moose-deer, and is in shape more like the ass than that animal. The tongue is esteemed a peculiar delicacy. The Caribou is amazingly swift; and has a sort of large, flat hoofs, furnished with very short hair between the divisions, which prevent it from sinking in the snow, on which it runs as fleetly as on firm ground.

Some think that this animal has a resemblance to the rein-deer of Lapland, though the horns are very dissimilar, especially in those which haunt the woods. The carcajou is an implacable enemy to this creature, and accordingly persecutes it on all possible occasions.

CARIGOY. An appellation by which some authors have described a very singular animal, a native of America, more usually known by the name of opossum.

CARP. One of the naturalized fish of this island, which was imported into it by Leonard Maschal about the year 1514; and is the most valuable of all kinds of fish for the stocking of ponds, because of its quick growth and prodigious increase. If the breeding and feeding of Carp were better understood and more frequently practised, the advantages would be very great, and fish-ponds no longer be deemed expensive. The sale of Carp constitutes a part of the revenue of the nobility and gentry in Prussia, Pomerania, Brandenburg, Saxony, Bohemia, Mecklenburg, and Holstein.

In order to reap every desirable advantage from this fish, particular attention should be paid to the soil, water, and situation of the Carp-pond: the most eligible ponds are those which are surrounded by the finest pastures or corn-fields of a rich black mould, having soft springs or running water on the spot, neither too cold, nor impregnated with acid, calcareous, selenitic, or other mineral particles. The water, indeed, may be softened by exposing it to the air and the sun in a reservoir, or by forming an open channel for it at some distance from the pond. The fish likewise should be sheltered from easterly and northerly winds, and be only exposed to the full influence of the sun.

Experience has evinced that it is most convenient to have three kinds of ponds for Carp; namely, the spawning-pond, the nursery-pond, and the main-pond. The first should be well cleared of every other species of fish, especially those of the rapacious kind, be plentifully supplied with soft water, and have a warm exposure. A pond of the extent of one acre requires three or four male Carp, and six or eight females; and so in proportion for every additional acre. The best breeding Carp are those which are five, six, or seven years old, with full scales, fine full eyes, and long bodies without any visible defects; and the pond should be stocked towards the end of March or beginning of April. Carp spawn in May, June, or July, according to the warmth of the season; and for this purpose they swim to a shady, warm, sheltered place, where they gently rub their bodies against the sandy ground, grass, or ozers, and by this pressure the milt issues out. The young fry, hatched from the spawn by the genial influence of the sun, should be left in this pond throughout the whole summer, and even the succeeding winter, if the water be sufficiently deep to prevent their suffocation under the ice during a severe one; otherwise the breeders and the fry should be put into separate ponds more commodious for their brumal habitations.

The second kind of ponds are the nurseries into

which the young fish should be removed in March or April, on a fine calm day, about the proportion of a thousand to a pond of one acre. When they are first put in, they should be well watched, and driven from the sides of the pond, lest they become the prey of rapacious birds; and in the space of two years they will grow to the weight of four, five, and sometimes six pounds.

The main-ponds should be stocked with such fish as are each about one foot in length, head and tail included. Every square of fifteen feet is sufficient for one Carp; and it is universally allowed, that their growth depends on the room, as well as the quantity of food allowed them. The best seasons for stocking the main-ponds are those of spring and autumn, when the fish continue to grow for a considerable time.

Carp are generally very long lived; and Gesner makes mention of one which was an hundred years old. They also grow to a very great size; and in this country some have been caught which weighed twenty pounds. Jovius says that, in the Lacus Larius, they are sometimes found of the weight of two hundred pounds; and Rzaczynski mentions some which were caught in the Dniester of the length of five feet. Carp are extremely tenacious of life, and will exist separate from their natural element for a considerable time. Experiments of this kind have been made, by placing them in nets, well wrapped up in wet mops, their mouths only remaining uncovered; and then hanging them up in a cellar, or some other cool place, feeding them at intervals with white bread and milk, and frequently plunging them into water. Carp, thus managed, have been known not only to have lived above a fortnight, but to grow exceedingly fat, and far superior in taste to those which were recently killed from the pond.

The Carp, as has been previously observed, is a prodigious breeder; and its quantity of roe has sometimes been so great, that when taken out and weighed against the fish itself, the former has been found to preponderate. From this spawn, caviare is made for the Jews, who hold the sturgeon in abhorrence.

These fish are excessively cunning, and on that account are by some stiled river-foxes. They sometimes leap over the nets, and by that means escape; and at others, they immerse themselves so deep in the mud, that the net passes over them. They are also very shy of taking a bait; though at spawning-times they are so very simple, that they suffer themselves to be tickled, handled, and caught with facility. They have been observed to mix their milts with the roes of other fish, from which a spurious breed is produced.

The Carp is of a thick figure; the scales are very large; and, when in full season, of a fine gilded hue. The jaws are of equal lengths; and there are two teeth in the jaws, or on the tongue; but at the entrance of the gullet, both above and below, there are certain bones, which act on each other, and comminute the food before it passes into the stomach. On each side of the mouth there is a single beard; and above these, on each side, there is another, but shorter. The dorsal fin extends far towards the tail, which is slightly bifurcated; the third ray of the dorsal fin is very strong, and armed with sharp teeth pointing downwards; and the third ray of the anal fin is of a similar construction.

CARPIONE. A name given by Salvian to the fish called by other writers *carpio* *lacus Benaci*.

It is the same with that called in some parts of England the red charre. Artedi distinguishes it from the other species of salmon, by calling it the small salmon with five rows of teeth in the palate.

CARRIER PIGEON. A variety of the common pigeon, so called from it's being employed in conveying letters from one place to another. It is in general larger than the other species, it's length from the tip of the beak to the end of the tail being frequently fifteen inches. It's flesh is firm, it's feathers are close, and it's neck is long and well turned. The upper chap of the bill is half covered, from the head downwards, with a white or blackish tuberculous fufuraceous flesh, which projects over both it's sides on the upper-part, and terminates in a point about the middle of the bill; and this is called the wattle. The eyes are surrounded with the same sort of corrugated flesh, and their irides are red. The beak is long, straight, and thick; the head is narrow, long, and flat; the neck is long and thin; and the breast is broad. The colour of the Carrier Pigeon is chiefly black or dun, though there are some blue, white, and pyed.

The use of these Pigeons is of a very ancient date. Anacreon informs us, that he conveyed his billet-doux to his beautiful Bathyllus by a dove. Taurosthenes also, by means of a Pigeon which he had decked with purple, sent advice to his father, who lived in the Isle of Ægina, of his victory in the Olympic Games, on the very day he had obtained it. At the siege of Modena, Thitius without, and Brutus within the walls, kept a constant correspondence by means of these winged messengers, baffling every art of Antony, the besieger, to intercept them. There are numerous instances on record of the services rendered by these pacific birds during the crusades. Joinville relates one which took place at the crusade of St. Louis; and Tasso mentions another which was effected during the siege of Jerusalem.

This practice was formerly much in vogue in the East; and at Scanderoon, till of late years, these birds used to give the merchants at Aleppo more expeditious notice of the arrival of a ship than could possibly have been done by any other means of conveyance.

These Pigeons, however, are not now fostered with so much care as formerly, when they were sent from governors in besieged cities to generals who were coming to relieve them without, dispatched by princes to their subjects with the news of some fortunate event, or from lovers to their mistresses with expressions of their passion. The principal use now made of them in this country, is that of expediting the tidings of public executions to such persons as are concerned in them; much in the same manner as, when some ancient hero was about to be interred, an eagle was let off from the funeral-pile, in order to complete his apotheosis.

If we investigate the causes which produce this extraordinary quality in the Carrier Pigeon, we shall find them proceeding from it's attachment to it's native place, and particularly to that spot where it has nourished it's young. The bird is brought from the place where it was bred, and whither it is to be sent back for information. A letter is tied under it's wing, and the Pigeon is then emancipated. The little animal no sooner finds itself at liberty, than it's passion for it's native habitation directs all it's motions. It instantly mounts into

the clouds to an amazing height; and then, with the greatest certainty and exactness, directs it's course, by some surprizing instinct, towards the place of it's abode, though at the distance of many miles. By what marks it is capable of discovering the place, or by what chart it is guided in a proper line, is to us utterly unknown: certain however it is that, in the space of half an hour, the Carrier Pigeon can perform a journey of forty miles, which is a degree of dispatch three times greater than the fleetest quadruped can accomplish.

CARTILAGINOUS FISHES. A particular class of fishes, in which the spine or back-bone is of the consistence of a cartilage, being hollow within, and containing medulla.

Cartilaginous Fishes are of two kinds; flat, as the raia or skate; and long and round, as the *asellus* or cod.

CARYOCATACTES. A bird of the magpie kind, of a brownish colour, beautifully variegated with white triangular spots, and very full of white feathers about the anus and the origin of the tail. It is very common in the mountainous parts of Germany.

CASPARGUS. A name borrowed from Ælian, and applied by Salvian to the fish commonly called *sparus* by naturalists. It is distinguished by Artedi under the name of the plain yellowish *sparus*, with a large annular spot near the tail.

CASQUE. A name sometimes given to a kind of *murex*, called the helmet-shell. There are several species, all approaching somewhat to a triangular figure, and smoother than the rest of the family of *murices*; and they are farther distinguished by having a sort of tubercles near the lip.

CASSANDRA. An elegant sea-shell, of the *concha globosa*, or *dolium* kind, more usually known by the name of the *lyra*, or harp-shell. There are three species; and they are supposed to receive the name of Cassandra from their being found on the shores of the Isle of Cassan.

CASSAON. A small fish of the shark kind; but infinitely less mischievous; called *cucuri* by the Brazilians.

CASSIDA. A genus of beetles, comprehended by Linnæus under the order of *coleoptera* in the class of insects.

Under this genus are comprehended all the clypeated beetles, or those covered with a hard crust, of which there are many species; but the most remarkable are the following.

CASSIDA BLACK, or SHIELD-BEETLE. This species, which has bristly feelers and a small roundish body, is of a dusky black colour. The cases of the wings are oblong, and slightly streaked with several small and very hollow spots. The shield is roundish, being somewhat broader than long, and rough on the upper-part, with a cruciated prominent edge; and sometimes there are two spots on the side towards the hinder-part, covered with yellow hair. The belly is black; but, when viewed in different lights, appears to have a silvery gloss. This beetle is found in country-houses, where it is very mischievous, frequently eating holes in woollen cloths and stuffs. When touched, though ever so gently, it draws up it's head and wings under it's body.

CASSIDA OVAL, PALE CLOUDED, with an undivided shield covering the head. The body of this small insect is of an oval shape, and a pale brown colour spotted and clouded all over with a more dusky hue, resembling in some measure the shell of a tortoise. The shield is semi-lunated, and

of a pale colour without spots; but the cases of the wings are streaked and speckled, the streaks running in crooked lines; and the feelers are slender, and of a black colour. It is found in beds of baum and mint, and on various hortulane productions.

CASSILI. A Philippine name for a species of water-raven, called also colocolo.

CASSIS LÆVIS. A name given by Rumphius, though very improperly, to the genus of shells called *dolia*, and *conchæ globosæ*.

CASSOWARY. A bird which inhabits the island of Java, and several parts of Africa, being one of the largest and heaviest of the feathered species. It is about five feet and a half long from the point of the bill to the extremity of the claws. The head and neck together are a foot and a half long; and the largest toe, including the claw, is five inches. The wing, which is in a great measure concealed under the feathers of the back, is so very small as to be almost imperceptible. Part of the feathers of other birds accelerate their flight, and are different from those which serve merely for a covering; but, in the Cassowary, all the feathers are of one kind, and externally of the same colour; they are also generally double, having two long shafts proceeding from a short socket fixed in the skin. Those which are double are always of unequal lengths, some being fourteen inches long, particularly on the rump; while others are not more than three. The beards which adorn the stem or shaft are, from about half way to the end, very long, and as thick as a horse-hair, without being subdivided into fibres. The stem or shaft is flat, shining, black, and knotted below, and from each joint proceeds a beard; and the beards at the extremity of the large feathers are perfectly black, and of a grey tawny colour towards their roots. The feathers on the head and neck are so short, as well as thinly dispersed, that the skin of the bird appears naked, except towards the hind-part of the head, where they are somewhat longer; while those on the rump are extremely thick, though in other respects they differ very little from the rest, except in being longer. The wings, when stripped of the feathers, are only three inches long. The extremities of the wings are adorned with five prickles of different lengths and thickneses, bend like a bow, are hollow from the roots to the very points, and contain only that slight substance which is found in all quills. The longest of these prickles is eleven inches: it is a quarter of an inch diameter at the root; but, towards the extremity, the point seems broken off.

The most remarkable part of the Cassowary, however, is it's head; which, though small like that of an ostrich, inspires some degree of terror. It is, as already observed, destitute of feathers, and armed with a kind of helmet of a horny substance, which covers it from the base of the bill to near half the head backwards. This helmet is black before, and yellow behind; and it's substance is extremely hard, being formed by the elevation of the bone of the skull, consisting of several plates, one over another, like the horns of an ox. Some naturalists have supposed that this helmet is shed every year with the feathers; but the most probable opinion is, that it only exfoliates slowly like the beak. To the peculiar singularity of this natural armour of the animal may be added the colour of the eye, which is a bright yellow; and the

pupil being above an inch and a half in diameter, gives it an air equally fierce and extraordinary. At the bottom of the superior eye-lid there is a row of small hairs; over which is another of black hair, having pretty much the resemblance of an eye-brow. The inferior eye-lid, which is the largest of the two, is also furnished with a considerable quantity of black hair. The aperture of the ear is very large and open, being only shaded with small black feathers. The sides of the head, about the eye and the ear, which have no covering, are blue, except the middle of the lower eye-lid, which is white. The upper part of the bill is very hard at the superior edges, and it's extremity is like that of a turkey-cock. The end of the lower mandible is slightly notched; and the whole is of a greyish brown, except a green spot on each side. As the beak admits of a very wide opening, this circumstance contributes greatly to the formidable appearance of the bird. The neck is of a violet-colour, inclining to that of slate; and red behind in several places, but particularly in the centre. About the middle of the neck before, at the rise of the large feathers, there are two protuberances formed by the skin, which somewhat resemble the gills of a cock, excepting that they are blue as well as red. The skin which covers the fore-part of the breast, on which this bird leans and rests, is hard, callous, and destitute of feathers. The thighs and legs, which are feathered, are extremely thick, strong, and straight, and covered with scales of various shapes. The toes, which are only three in number, are likewise covered with scales; and the claws are of a hard solid substance, externally black, and internally red.

If anatomically regarded, the other parts of the Cassowary are equally remarkable. It unites with the double stomach of animals which live on vegetables, the short intestines of those which live on flesh. The intestines of this bird are amazingly short; and the heart is not more than an inch and a half long, and an inch broad at the base. On the whole, it has the head of a warrior, the eye of a lion, the defence of a porcupine, and the swiftness of a courser. Thus formed for a life of hostility, for terrifying others, and for it's own defence, it might naturally enough be concluded that the Cassowary is one of the most fierce and terrible animals of it's kind; but nothing is so opposite to it's natural character, nothing so different from the life it is contented to lead. It never attacks other birds; and, instead of it's bill, when attacked, it makes use of it's legs, and either kicks like a horse, or runs against it's pursuer, beating him down, and treading him under it's feet.

Nor is the motion of this animal less extraordinary than it's appearance. Instead of going directly forward, it seems to kick up behind with one leg; and then making a bound onward with the other, it advances with such prodigious velocity, that the swiftest racer would be left far behind it.

The Cassowary is so little susceptible of the sense of tasting, that it indiscriminately swallows every thing within it's reach. The Dutch assert, that it not only devours glass, iron, and stones, but even burning coals, without either betraying the smallest symptoms of fear, or receiving any injury. It is said that the passage of food through it's gullet is performed so rapidly, that even the very eggs which it swallows pass through it without the smallest visible alteration. In fact, the alimentary canal of this animal, as before observed, is most remark-

ably short; and perhaps many kinds of food are indigestible in it's stomach which have not been previously masticated.

The eggs of the Cassowary are of a grey ash-colour, inclining to green, and marked with a number of little tubercles of a deep green: the largest measure about fifteen inches round one way, and twelve the other; and, considering their size, their shells are remarkably thin.

The southern parts of the farthest Indies seem to be the natural climate of this extraordinary bird; and it's domain, if we may so call it, begins where that of the ostrich terminates. The latter has never been found beyond the Ganges; while the Cassowary is never seen nearer than the islands of Banda, Sumatra, Java, and the Moluccas: yet even there this bird seems not to have multiplied in any considerable degree; and is considered as a curiosity in the very country of which it is a native.

CASTAGNOLE. The Italian name of the fish called chromis by the generality of authors, and reduced by Artedi to the genus of the sparus: he distinguishes it by the name of the sparus with the second ray of each belly-fin extended to a considerable length.

CASTOR. A name sometimes given to the beaver, in which the drug castor is found.

CAT. This animal is principally distinguished by it's sharp and formidable claws, which it possesses the faculty of extending or concealing at pleasure. Cats lead a ravenous and solitary life; neither uniting, like vegetable feeders, for their mutual defence; nor, like those of the dog kind, for their reciprocal support. The dog, the wolf, and the bear, will sometimes live on farinaceous food; but all animals of the Cat kind, such as the lion, the tiger, the leopard, and the ounce, devour nothing but flesh; and, except at certain seasons, are enemies to each other.

These creatures are in general fierce, rapacious, subtle, cruel, and utterly incapable of adding to the stock of human happiness; it is probable, however, that even the fiercest of them might be rendered domestic, were the experiment adequate to the trouble. Lions have been yoked to the chariots of conquerors, and tigers taught to tend those herds which they naturally destroy.

All animals of the Cat kind are nearly allied to each other, though differing both in size and colour; they are also equally fierce, artful, and rapacious; and whoever has seen one, may judge of all. In other creatures, many changes are wrought by human assiduity: the dog, the hog, or the sheep, are altered in their natures and habits conformably to the necessities or caprices of mankind; but all creatures of this kind are inflexible in their forms, and strongly impressed with an air of natural wildness.

Animals of the Cat kind are remarkable for the sharpness and strength of their claws, which they thrust from their sheaths whenever they seize their prey. They are also equally remarkable for the roundness of their heads, the shortness of their snouts, and the large whiskers which grow on their upper lips. They have each thirty teeth, which are very formidable, but much less calculated for masticating than tearing their food. With respect to the dog kind, their greatest strength lies in their under-jaws; but, in the feline species, in their claws, which they extend with facility; and their gripes are so very powerful, that no human efforts can disengage them. They are not, however, endued

with the swiftness of most other animals; but generally owe their subsistence rather to catching their prey by surprize than fairly hunting it down: all of them seize it with a bound, at the same time expressing their savage pleasure by a roar; and their first grasp generally disables the captive from all resistance. With all these qualifications for slaughter, they nevertheless seem timid and cowardly, and seldom make an attack till there is every probability of success; for when the force against them is superior, or even equal to their own, they have recourse to flight.

CAT, COMMON. This well-known animal has long been domesticated. Indeed, it is the only creature of it's kind whose services can compensate for the trouble of bringing it up, and whose size is too inconsiderable to render it formidable. Though easily offended, and often capricious in it's resentments, it is not endowed with power sufficient to capacitate it for much mischief. Of all animals, when young, there is none more sportive than the kitten; but, as it grows up, it seems to lose this disposition, and the innate treachery of it's kind is then seen to prevail. Being naturally ravenous, education teaches it to disguise it's appetites, and to watch the favourable moment of plunder; supple, insinuating, and artful, it has the cunning to conceal it's intentions till it can effectually put them in execution; and, when opportunity offers, it at once seizes on whatever comes in it's way, flies off with it, and continues in solitude till it supposes the offence is forgotten. The Cat has only the mere semblance of attachment; and, from it's timid approaches and suspicious looks, may easily be perceived either to dread it's master, or distrust his kindness: it is assiduous rather for it's own pleasure than from a desire of pleasing; and it often gains confidence only to abuse it.

The form of the body, and the temperament of this animal, correspond with it's disposition; active, cleanly, delicate, and voluptuous, it is very fond of ease, and always makes choice of the softest bed. Many of it's habits, however, are rather the consequences of it's formation than the result of any perverseness in it's disposition: it is timid and distrustful, because it's body is weak, and it's skin tender; and a blow will hurt it infinitely more than a dog, the hide of which is thick, and it's body muscular.

The Cat goes with young fifty-six days, and seldom brings forth more than five or six at a time. The female usually hides the place of her retreat from the male, who often devours the kittens. She feeds them for some weeks with her milk, and with whatever small animals she can catch by surprize; and early accustoms them to rapine. Before they are one year old, they are fit to engender; the female seeks the male with cries, and their amorous intercourse is well known to be attended with the most disgusting noise. They live to about the age of ten years, during which period they are extremely vivacious, and will endure incredible cruelties before they resign their breath.

Cats no sooner arrive at maturity, than they shew a disposition for rapine; they often look wistfully towards cages in which birds are confined, sit centinels at the mouths of mouse-holes, and soon acquire from nature every quality requisite to render them compleat hunters. Indeed, their dispositions are so incapable of constraint, that all instructions are lost on them. The Greek monks of the isle of Cyprus, it is said, teach Cats to hunt

hunt serpents, with which reptiles that island is greatly infested; but this quality may perhaps be natural to these creatures, and not the effect of discipline. Whatever animals are considerably weaker than themselves, prove to them indiscriminate objects of slaughter. Birds, young rabbits, hares, rats, mice, bats, moles, toads, and frogs, are all equally pursued; though, perhaps, not equally acceptable. The mouse seems to be their favourite game; and though Cats possess the sense of smelling but in a mean degree, they nevertheless know those holes in which their prey reside; and they will sometimes wait patiently for a whole day together, seemingly quite motionless, till the victims come within their reach, when they are instantly seized with a bound. The fixed inclination which Cats discover for this peculiar manner of pursuit, arises from the conformation of their eyes. The pupil in man, as in most other animals, is capable of but a small degree of contraction and dilatation; it enlarges a little in the dark, and contracts when the light pours upon it too profusely: but, in the eyes of Cats, this contraction and dilatation is so considerable, that the pupil, which by day appears narrow and small, by night expands over the whole surface of the eye-ball, and gives the eyes a fiery appearance. By means of this peculiar structure, their eyes are better adapted for vision in darkness than in light; and the animals are thus fitted for spying out and surprizing their prey.

Notwithstanding the Cat is a household animal, it cannot properly be called a dependant: though perfectly tame, it does not acknowledge any obedience; but, on the contrary, is entirely swayed by its own caprice, no art being sufficient to controul any of its inclinations. If the inhabitants quit the house, the Cat still remains; and, if carried elsewhere, it appears for a time bewildered with its situation, till it becomes acquainted with the retreats of its prey, as well as with all the little holes and labyrinths through which an escape may be effected.

The Cat is equally afraid of water, of cold, and of particular smells. It loves to bask in the sun, to get near the fire, and to rub itself against perfumed substances. It is also excessively fond of particular plants, such as valerian, marum, and Cat-mint; against which it rubs itself, smells them at a distance, and exhibits every sign of rapturous intoxication.

As the teeth of the Cat are rather formed for tearing than chewing its aliments, it eats but slowly, and with some difficulty; and for this reason it loves the most tender food, particularly fish, which it devours as well raw as boiled. Its sleep is very light: it often affects a dormant posture, the better to deceive its prey; and, in the act of walking, treads very softly, and without noise. Its fur is usually sleek and glossy; and on this account its hair, which is easily electrified, sends forth scintillations when rubbed in the dark. Linnaeus informs us, that the Cat washes its face with its fore-feet at the approach of a storm; but this observation would, in our opinion, have with more propriety dropped from a house-matron than a naturalist, for the rubbing of its face appears to be only one of its instinctive habits.

The Cat was an animal very highly esteemed by our ancestors; and, according to the laws of Howel, the price of a kitten, before it could see, was to be one penny; till it caught a mouse, two-pence; and,

when it commenced mouser, four-pence: it was also required that the creature should be perfect in its senses of hearing and seeing, have its claws compleat, and be an expert mouser and a good nurse. If it proved defective in any of these qualities, the seller was to forfeit to the buyer one-third of its value; and if any one stole or killed the Cat that guarded the prince's granary, he was to forfeit a milch-ewe, with its fleece and lamb; or as much wheat as, when poured over the Cat suspended by the tail, and the head touching the floor, would form a heap high enough to cover the tip of the former. From hence, besides a pleasing picture of the simplicity of the times, we discover a strong argument that Cats were not naturally bred in our forests: an animal which could be so easily taken, could never have been so highly rated; and the precautions laid down to improve the breed would have been superfluous with respect to a creature which multiplies in such an amazing degree.

Though this animal is an object of aversion to multitudes, it is a singular favourite of the Mahometans; and Maillet, after expatiating largely on the beauty of Egyptian Cats, adds, that the inhabitants build hospitals for them. The destruction of the Cat was most severely punished by the ancient Egyptians: whether the death of that animal had been occasioned through inadvertency, or otherwise, the person who had killed it was accounted equally culpable; and that crime could only be expiated by the most cruel torments. 'When the Cat dies a natural death,' says Herodotus, 'all the people of the house where that accident has happened, shave their eye-brows, as a token of sorrow; and the Cat is embalmed, and honourably interred.' The veneration of the Egyptians for this creature was founded on an opinion prevalent among them, that Diana, in order to avoid the fury of the giants, had concealed her divinity under the form of that animal; and the God-Cat was sometimes represented among them by its whole native form, and sometimes by the body of a man bearing the head of a Cat.

CAT, ANGORA. The hair of this animal is long, and of a silvery whiteness and silky texture, forming a fine ruff about its neck; and that on the tail is very long and spreading. It grows to a considerable size; and is found in Angora, the same country which produces the fine-horned goat. After the first generation, it usually degenerates in our climate. A variety of this genus is found in China, having pendent ears; of which the Chinese are very fond, and ornament their necks with silver collars. This creature is a great destroyer of rats, and seems to be the same with the domestic animal which the Chinese call *sumxi*.

CAT, BLUE. A species of the feline tribe, found in Persia, particularly in the province of Chorazan, of the figure and shape of the common Cat, but infinitely more beautiful in the lustre and colour of its skin, which is a grey blue without mixture, and as soft and shining as silk. The tail is very long, and covered with hair six inches in length, which the animal throws upon its back like the squirrel. These Cats are well known in France; and have been imported into England under the name above-mentioned.

CAT, WILD. This animal, in its savage state, is considerably larger than the domestic Cat; and its fur being longer, it on that account appears larger than it really is. Its head is also bigger, its face is flatter, and its teeth and claws are much more formidable

formidable than those of that animal. Being formed for rapine, it's muscles are very strong; and it's tail, which is of a moderate length, is very thick and flat, marked with alternate bars of black and white, the tip being always black. The general colour of this animal, in England, is a yellowish white, mixed with a deep grey; and the fur is very soft and fine. Though these colours appear at first sight to be confusedly blended together, on a closer inspection they will be found to be disposed like the streaks in the skin of the tiger, pointing from the back downward, rising from a black list which runs from the head along the middle of the back to the tail.

This creature, which inhabits the most mountainous and woody spots, lives chiefly in trees, feeds only by night, and is the most destructive of all carnivorous animals in this kingdom. It does not specifically differ from the tame Cat; the latter being originally of the same kind, but only varying in colour, and some other trifling accidents common to domesticated animals. The Wild Cat multiplies as fast as the domestic one, and has been often known to breed with it. This animal was formerly reckoned among the beasts of chase; as appears by a charter granted by Richard II. to the Abbot of Peterborough, permitting him to hunt the hare, the fox, and the Wild Cat; and, according to authentic records, it seems to have been the object of the sportsman's diversion even in much earlier times. It is probable, however, that those were not original inhabitants of this kingdom, but first introduced in a domestic state, and afterwards became wild either through ill usage or neglect.

The Cat is one of those few animals which are common to the new continent as well as the old; for when Columbus first discovered that country, a hunter presented him with one captured in the woods, which was of the ordinary size, and had a long thick tail.

CAT, WILD, OF LOUISIANA. This animal, which resembles the marmot rather than the Cat, is only nine or ten inches high, and eighteen long; and it's head is like that of a fox. The flesh of these creatures is esteemed proper for food; and those which are tamed become extremely familiar and sportive.

There is another species of Wild Cat found in North America, entirely different from that of Europe, being larger, more nimble and ferocious, and having a very short tail. This animal screams in a very dismal manner, especially in the night-time; runs up trees with great agility, and generally takes it's food by surprize. It is spotted like a leopard, and it's skin is applied to various beneficial purposes.

CAT, WILD, OF THE CAPE OF GOOD HOPE. There are several varieties of this animal; but they are either so negligently or unscientifically mentioned, as to render it impossible for a zoologist to give a proper description of them. Kolber mentions two kinds; one of which he calls the Wild Red Cat, distinguished by a bright red streak running along the ridge of the back to the tail, and losing itself in the grey and white on the sides. Their skins are said to afford relief in gouty cases; and, on that account, are much valued at the Cape. To the other variety he gives the name of the Bush Cat, of which he only informs us that it is the largest of all the Wild Cats in the Cape countries.

CAT, TIGER. This animal is also called the Cat of the Wood, because it usually frequents

woods and groves. It is spotted nearly like the tiger; and it's skin is covered with excellent fur, which is used as well for warmth as ornament, and is extremely valuable.

CAT, MOUNTAIN, OR CATUS PARDUS. An American animal, two feet and a half long from the nose to the root of the tail, about eighteen inches high, and having a tail eight inches long. In shape and appearance, it bears a strong resemblance to the common Cat, except that the tail is shorter in proportion to the body. The hair or fur is of a reddish colour; but that of the belly and the insides of the fore-legs is whitish; and that under the throat and lower-jaw is entirely white. The whole skin is beautified with black spots of different figures, of an oblong shape on the back, and roundish on the belly and paws. On the ears there are several transverse black stripes; but, in other respects, they resemble those of the European Cat. The whiskers are short; and there is no long hair on the eye-brows and cheeks, as in the common Cat. All the intestines seem of an equal thickness, being two-thirds of an inch in diameter; and even the rectum and colon are only one-third of an inch thicker than the rest. The stomach is very large; and in the sinuosity, between the upper and lower orifice, there is a membrane filled with fat, which unites them together.

This creature is of a mild and gentle nature, and becomes very corpulent.

CAT, CIVET. This animal has short round ears, light blue eyes, and a sharp nose tipped with black. The sides of the face, the chin, breast, legs, and feet, are black; and the rest of the face, as well as part of the sides of the neck, are white tinged with yellow. From each ear run three black stripes, which terminate at the throat and shoulders. The back and sides are cinereous; tinged with yellow, and marked with large dusky spots, disposed in rows. The hair is coarse; but that on the top of the body is longest, and stands up like a mane. The tail is sometimes wholly black, and at others spotted near the base. It's length, from the nose to the tail, is about two feet three inches; the tail itself is fourteen inches long; and the body is pretty thick.

The Civet Cat inhabits India, the Philippine Isles, Guinea, Ethiopia, and Madagascar. The celebrated drug, musk or civet, is produced from an aperture between the genitals and the anus, in both sexes, secreted from several glands. Those who keep these animals, procure the musk by scraping the inside of this bag twice a week with an iron spatula, and collect about a drachm each time; but it is seldom sold pure, being generally adulterated with oil or suet, in order to render it heavier. The males yield the largest quantity, especially when they are previously irritated. When young, they are fed with pap made of millet, and a little fish or flesh; when old, with raw flesh; but, in a wild state, they prey on fowls. Several of these animals, which, to all external appearance, seemed females, were dissected by the members of the Royal Academy at Paris: the parts of generation in the males were hid within the body; or rather, there was not the least sign of any distinction of the sexes. The opening of the pouch or bag, which is the receptacle of the civet, was under the anus, and not under the tail, as some authors have maintained. Under it there was another small aperture, at the distance of two inches and a half; and the pouch itself was two inches and

and a half broad, and three long. Its opening made a chink, from the top downwards, two inches and a half deep; and it was covered round the edges, and internally, with short hair: When the two lips were drawn asunder, the inner capacity might be seen, which was large enough to contain a pullet's egg. The bottom was pierced to the right and left with two holes capable of admitting the point of the little finger, each of which penetrated into a bag covered with a white skin like that of a goose. The eminences formed by this inequality were pierced with pores, from which might be squeezed the scented fluid, called ribet by the Arabians, from which the English term Civet is derived.

Buffon describes another variety of this animal, which he calls the zibet, and which differs from the other in having a more slender body, a thinner snout, large high ears, a longer tail, and the hair all over the body of an uniform length.

CAT, SEA. The Sea-Cat is about half the size of the sea-lion, but thicker about the breast and towards the tail; the snout is also longer than that of the sea-lion, and the teeth are larger; the eyes are like those of the cow; the ears are short; the paws are naked and black; and the hair is black mixed with grey, very short and brittle. The young are of a blueish-black colour.

Sea-Cats are caught in the vicinity of the River Shupanova during the spring and autumn, at which seasons they migrate from the Kurilskoy island to the American coast; but they are taken in greater numbers about the Cape of Kronotzkoy. Almost all the females which are caught in the spring are pregnant; and such of them as are near bringing forth are immediately opened, and the young taken out and skinned. The females suckle their young with two teats, which are placed between their hinder paws; and they seldom have more than one at a time. Their young see as soon as they are whelped; and they have thirty-two teeth, exclusive of their tusks, two of which are on each side, and begin to appear the fourth day after their birth. Their colour is at first a dark blue, but in the space of four or five days grey hairs begin to appear between their hinder legs; and, at the end of one month, their bellies are black and grey. The male is larger and blacker than the female, who, as she grows up, turns almost of a blue colour, having only grey spots between her fore-legs. The male and female differ so much in the form and strength of their bodies, that, if not carefully examined, they may readily be taken for different species. One male has generally from eight to fifteen, and even sometimes fifty, females, over whom he watches with such jealousy, that no strangers are suffered to approach them; and though many thousands lie on the shore, every family keeps apart; that is, the male, with his wives, young ones, and those of a year old, who have not yet attached themselves to any male; so that a single family sometimes consists of not less than one hundred and twenty. They likewise swim at sea in prodigious droves; and the old ones live apart, and sometimes sleep a whole month together without food. These creatures are amazingly fierce, attacking all who pass them; and so obstinate are they, that they will rather die than quit their places. When they perceive any person approaching, some of them rush on him, while others lie ready to assist their companions. They bite the stones which are thrown at them; and though their teeth, or even their

eyes, are struck out, they will not quit their stations: nor dare they; for, at every step any one of them moves off, he is sure to create himself a new enemy; so that, could he escape the fury of human attacks, his own companions would inevitably destroy him. If any one of them makes a shew of retiring, the others draw near, in order to prevent him; and, if any one seems to suspect the courage of another, he falls on him, and chastises him. This suspicion of each other is sometimes carried so far, that for a furlong's length nothing is to be seen but bloody fights; and, on such occasions, the combatants may be passed without danger. If two attack one, some of the rest always support the weakest, for they do not allow of unequal combat; and, during such contests, those Cats which are swimming in the sea raise their heads, in order to look at the behaviour of the combatants; till at length, becoming fierce themselves, they forsake the water, and increase the number of such champions.

Mr. Steller made the following experiment. With his Cossacks he attacked one of the Sea-Cats, put out its eyes, and irritated four or five more by throwing stones at them. When these creatures pursued him, he ran towards the blind one; which hearing the running of its companions, and not knowing whom they pursued, attacked them. Mr. Steller then retired to an eminence, from which he observed the battle for some hours. The blind Cat assaulted its companions indiscriminately, even such as took its part; so that at length they all fell on the blind animal, and allowed it no rest either on the land or in the sea; out of which last they dragged it on shore, and tore it to pieces.

When only two of these animals engage, the battle frequently lasts for an hour: during which they sometimes rest a little, and lie down near each other; and afterwards they both rise at once, and renew the engagement. They generally fight with their heads erect, and turn them aside from the strokes of each other. So long as their strength remains equal, they contend with their fore-paws; but, when one party becomes weak, the other seizes its antagonist with its teeth, and throws it on the ground: and whenever their companions observe this, they fly to the assistance of the vanquished. The wounds inflicted with their teeth are generally as deep as those of a sabre; and, at the conclusion of these skirmishes, they throw themselves into the water, in order to wash their bodies.

The accidental causes of the contentions of these creatures are in general the following. The first and most bloody is on account of their females, when one of them endeavours to carry off the mistress of another, or the young ones that are females, who always follow the conqueror. The second respects their places of retreat, when one approaches too near another; of which encroachments they never admit, either for want of room, or because they are jealous of each other's proximity to their respective mistresses. And the third relates to their endeavouring to do justice to each other, and to the compromising of their quarrels.

The male Cat is very fond of his offspring; but both the females and the young fear him extremely, as he sometimes treats them most tyrannically. When any person endeavours to catch one of their young, the male stands on the defensive, while the female attempts to save herself and her brood by flight; but, if she happens to drop the young one

out of her mouth, the male immediately leaves his enemy, and seizing on her with his teeth, beats her against the stones till he leaves her for dead. As soon, however, as she recovers, she crawls to his feet, which she licks, and washes with her tears, which flow in abundance. In the mean time, the male stalks backwards and forwards, gnashing his teeth, and tossing his head like a bear; till at last, on perceiving that his antagonist has carried off the little one, he also begins to weep.

When the Sea-Cat lies on the shore, and diverts itself, it lows like a cow; when it fights, it growls like a bear; when it has vanquished its enemy, it chirps like a cricket; but, when it is itself vanquished or wounded, it groans or mews like a common Cat; and, when it quits the water, it generally shakes itself, strokes its breast with its hinder paws, and smoothes the hair on it. The male, when sleeping, lays his snout to that of the female, as if in the act of kissing her; and, when lying in the sun, they hold up their paws, and wag them as dogs do their tails. They do not, however, sleep sound; and their smell and hearing are surprizingly acute.

These animals swim so very fast, that they can easily accomplish ten miles in an hour; and when they happen to be wounded at sea, they seize the fishing-boats with their teeth, and drag them along with such swiftness, that they appear to fly, and not to swim on the water; and by this means a boat is frequently overturned, unless the steerfman is very skilful. As they are furnished with a foramen ovale, they can continue very long under water; but, whenever they grow weak, they arise to the top, in order to imbibe fresh air. They often swim on their backs, and so near the surface of the water, that their hinder-paws are frequently dry. When they first go into that element, they turn themselves like a wheel, after the example of many other large sea-animals; and, when they quit it, they fasten their fore-paws into the rocks, and thus draw up their bodies, which they can move but slowly in such situations; though they are remarkably swift in their motions on plain ground.

The manner of catching these creatures, in Bering's Island, was thus: the natives first struck out their eyes with stones, and then beat out their brains with clubs. But this business proved so difficult, that it required at least three hundred strokes; and though sometimes their skulls were broken in pieces, and all their teeth beat out, they would still keep their places, stand on their hinder paws, and endeavour to defend themselves: one of them, thus treated, lived full two weeks. The people of Kamtschatka kill them with harpoons: some, however, die through age, though much the greater number expire with wounds they receive in quarrels.

CAT, FLYING. This animal appears to be a species of bat, having its wings, both internally and externally, covered with fine soft hair of a reddish grey colour. The wings of one of these bats, when measured by Clusius, were twenty-one inches long, and nine broad. The head resembles that of a wild Cat; the ears are of a middling size; the eyes are large and shining; and the fore-feet, together with the tail, are united to the membranous wings, inasmuch that every part of this creature assists it in flying. The breasts of the female are large and round; the membranous wings seem to be dentated on the edges; but the interior surface is less downy, and not of so deep a yellow as the exterior.

In some of these animals, the mouth is obtuse, and approximates to the shape of that of a Cat; and, in others, it is long and narrow, and greatly resembles that of a fox. This animal delights in caverns and subterraneous retreats, where it lies hid during the winter; and, like the bat tribe, only flies abroad about the dusk of the evening.

CAT-FISH, GREATER. This creature, which seems to be a species of shark, is by some naturalists called the dog-fish. The upper-side of the back is of a brownish colour, variegated transversely with broken irregular bars of a darkish colour; and the belly or under-side is white. There are faint indistinct lateral lines passing from the eyes to the tail. The nostrils have slits which communicate with the mouth; and five openings on each side of the head form the gills. It has two single fins on the back, one behind the other; and on the belly there are two pair of fins, between the hindermost of which the vent is placed. It has likewise a single fin on its under-side, near the tail; the tail-fin is of a peculiar formation; and all these members are furnished with dusky spots. This fish proceeds from an egg of a horny substance of a red-brown colour, shaped like a purse, and flatted and edged on its sides. The skin of the Cat-Fish is sensibly rough to the touch; and the teeth, which are very sharp, consist of several rows, like those of the shark. It is found on several of the British coasts, and likewise near the Cape of Good Hope; whence we may conclude, that it is a general inhabitant of the seas both in the temperate and torrid zones.

CAT-FISH, GREATEST. This fish differs from the former in being of an ash-colour, in having larger and fewer spots, a longer and thicker snout, and nostrils at a considerable distance from the mouth.

CAT, SEA. A fish of a very singular shape, with eyes extremely large in proportion to the body. The back is of a purple colour; the belly is blue, spotted with purple; and the tail is very broad. This fish is not furnished with any fins, except on the tail and the fore-part of the head; on which last there are seven, pointing directly forward like the feelers of shrimps. Another variety of this fish is of a still more extraordinary figure. The back-part forms an oval lump, on which the head seems to hang; it has long large eyes; and a smooth skin inclining to blue on all parts of the body, except the belly, which is brown. The entrails contain a glutinous matter, of which the Chinese make ink.

CATANODROMI. A term of the same signification with Anadromi, the distinctive name of a tribe of fishes which at times leave the fresh water for the salt, and afterwards return to the former again.

CATARACTA. A bird of the gannet kind, so called by Aldrovandus. It resembles the wood-pigeon so exactly, that it can hardly be distinguished from it, except by the inferiority of its dimensions. Indeed, Mr. Ray suspects it to be same; and the rather, as its description was only taken from a picture.

CATRACTES. A name given by some authors to the large sea-gull; called in Cornwall, in which county it is very common, the gannett.

CATCH-FLY. A tribe of birds common to almost every country in the known world; but the species are most numerous in the warmer climates, where the alternate extremes of heat and humidity are very favourable to the propagation of insects, the usual food of these birds. See FLY-CATCHER.

CATERPILLAR.

CATERPILLAR. Every butterfly must pass through the Caterpillar state before it arrives at it's beauty and perfection; and, in the same manner, all the known winged animals, except the puceron, undergo a reptile state, none of them being produced in a winged form.

For a description of the common Caterpillars, which produce butterflies and moths, see the article **BUTTERFLY**.

CATERPILLAR, WATER. It may perhaps seem incredible to many, that Caterpillars should be capable of existing entirely under water; but experience and observation prove to a demonstration, that they not only live in that element, but that they devour aquatic plants in the same manner as their kindred tribes do land ones. Nor is the appellation given to these insects an improper one, as is frequently the case with respect to larger aquatic animals; but they in every sense justify their title, as they do not respire after the manner of the fish tribe, but by their stigmata, like other Caterpillars.

The penetrating Reaumur, in his observations, met with two species of these insects; the one on the potamogiton, or pond-weed; and the other on the lenticula, or duck-meat. Both of these appeared to be very industrious animals; but the first being the largest, it's operations were distinguished with greater facility than those of the last. Though truly an aquatic animal, it swims but very indifferently, and seems rather averse to the element in which it resides.

The parent butterfly lays her eggs on a leaf of the potamogiton; and, as soon as the young Caterpillar is hatched, it gnaws out a piece of the leaf, of a roundish figure, which it carries to another part of the same leaf, and lays it in such a manner that there may be an interstice left in which it may lodge itself. It then affixes this fragment to the larger leaf, by means of silk of it's own spinning, only leaving a hole from which it can protrude it's head and consume the surrounding leaves. Though this aperture is very small, it easily disengages itself, since a little exertion bends the upper as well as lower leaves, both being flexible; and, when the creature quits it's cell, it has a sort of down which defends it from rain; and the natural elasticity of the leaves and silk close the aperture again, so that no water can penetrate. The leaves of this kind of plant are also very slippery, and resist the wet in the same manner as if they were oiled. However, it soon happens that this habitation becomes too small for the animal; in which case it forms another, and, at proper intervals, others adapted to it's size. The subsequent changes into the chrysalis and butterfly states are effected in the usual way. The butterfly quits it's last shell, which was placed on the surface of the water; and the lightness of the animal easily sustains it on the liquid element till it's wings are dried, when it becomes a denizen of the sky.

CATERPILLAR, WOOD. A genus of insects living in a different manner from those which subsist on leaves and plants; being concealed under the bark, roots, trunks, branches, and even fruits of trees. They are easily distinguished from those worms and maggots which are commonly found in roots and fruits, and owe their origin to a different kind of flies; but they are liable to be confounded with a species of animals, called by Reaumur false or bastard Caterpillars, which very much resemble the real Caterpillars, except that they have a greater

number of legs, and are finally transformed into four-winged flies, which are different from the real butterflies.

The winged insects which give birth to those Caterpillars that live immured in trees or fruits, lay their eggs on the surface; and the young Caterpillars, as soon as hatched, begin to eat their way into the substance. But, what appears most singular, is, that there is usually no more than one Caterpillar in a fruit, though it be large enough to afford food for several; and if two of these creatures are sometimes found enclosed in it, one of them is commonly a Caterpillar, and the other an animal of some other kind. The reason of this seems to be, that the operation of penetrating into the fruit is so difficult to the young animal, that it seldom succeeds; and though the butterfly deposits a great number of eggs on each fruit, and these are in general hatched, the rind is commonly too strong for the insect to perforate.

When once lodged in their prison, these animals consume the substance which incloses them at their leisure, leaving the outer shells uninjured; and this is frequently the case in grains of corn, where the mealy substance serves as aliment, and the exterior skins become firm coverings for the animals. The mealy substances, in this respect, usually prove sufficient for the animals in their Caterpillar state; but should they prove deficient, the creatures have recourse to the very singular expedient of devouring their own excrements, and thus separating nourishment from that very matter which had before passed off from their stomachs in an undigested state.

Some Caterpillars of this kind quit their retreats, in order to change into their chrysalis, and thence into their butterfly state; but the greater number remain there, and pass through all their changes in confinement. These Caterpillars, like all the other kinds, find very formidable and destructive enemies in a certain tribe of worms; and, on opening the excavated fruit, instead of the expected Caterpillar, it is not unusual to find a fly just ready to fall out, which has been produced from the chrysalis of a worm that had previously found it's way into the fruit, and devoured the Caterpillar, it's original inhabitant.

CATERPILLAR EATERS. A name given by some authors to a species of worms bred in the bodies of Caterpillars which devour their substance. These worms originate from certain flies which deposit their eggs in these animals; and after the usual transformations, assume the parental form.

Reaumur, in his History of Insects, has given a very curious account of these little worms; to which he gives the name of the ichneumon of Caterpillars.

CATHETOPATEUS. A term, with it's opposite, Plagioplateus, frequently used by Artedi, and others who have adopted his system, in the description of fishes: they are expressed in English by the two familiar words, Compressed and Depressed. The heads of fishes are the principal parts characterized by these distinctions.

CATOCYSTUS. The name of one of the general divisions of the echinodermata, or sea hedge-hogs, which have the aperture of the anus in some part of the base; whereas the anocysti have it at the top of the shell.

For the more accurately distinguishing them into genera, the bases of the shells are to be divided into regular, and irregular. The regular are those which

which are round, or oval; and the irregular, those which have sinuses or angles.

CATTLE. A collective term, importing all quadrupeds used either in tilling the ground or as food for the subsistence of mankind.

Under this term some naturalists include all quadrupeds of a gregarious nature, as sheep, oxen, horses, and hogs; while others define it to be all those tame animals which feed on grass.

CATTLE, BLACK. A term frequently used to express the cow kind; sometimes also denominated neat cattle.

CATTUPHUS, or COSSOPHUS. An Aristotelian name for the fish called merula and turdus nigricans by the Latins. It is a species of the labrus, easily distinguished from all others by its colour, and called the blueish-black labrus by such naturalists as acknowledge the generical name labrus.

CATULUS. A sea-fish, of which authors describe three species; viz. the major, the maximus, and the minimus. It is properly of the galeus kind; having a variegated skin; and a large wide mouth, furnished with strong teeth, sharp-edged, and hollowed inwardly. The first kind is common in the British seas, particularly on the coast of Cornwall; and the two others are generally found in the Mediterranean.

CATUS PARDUS. An American animal, called by some authors Catus montanus; and, in English, the mountain-cat. In the Linnæan system, it is a species of the cat called felis pardalis. See **CAT, MOUNTAIN.**

CATUS ZIBETHICUS. A name sometimes given to the animal which produces the perfume called civet.

CAVAGIRO. A Mediterranean fish shaped somewhat like the common eel, but thinner and more depressed.

CAVALLI-MARINI. A small animal, about the length of a man's thumb, found on the sea coast near Pozzuoli. The head bears some resemblance to that of a horse; and the body terminates in a tail like that of a shrimp. It is said to be efficacious in encreasing the milk of nurses.

CAUDISONA VIPERA. A name given by some naturalists to the rattle-snake.

CAUDIVERBA. An animal of the lizard kind, called also wromastyx; but more commonly known among authors by the name of cordylus.

CAVIA COBAYA. A name given by the Brazilians, and several naturalists, to the creature commonly known among us by the appellation of the Guinea-pig.

CAURIS, or COWRIES. A genus of shells called by some conchologists porcellana, and concha venerea. From a false pronunciation of this word, these shells are sometimes called gowries. See **PORCELAIN SHELL.**

CAVY. A tribe of animals which have two cutting teeth in each jaw; four toes on the fore-feet, and three behind; short ears; and very short tails. They have a slow, creeping pace, are numerous breeders, and of course but short lived.

CAVY, COMMON. This animal is called in England the Guinea-pig, because it is supposed by the vulgar to come from that country; and, by Buffon, the Indian pig. It's ears are large, broad, and rounded at the sides; it's upper-lip is half divided; and it's hair is erect, somewhat resembling that of a young pig. It is of a white colour, or rather white varied with orange and black in irregular

blotches. It has four toes on the fore-legs, and three on the hind; but it has no tail. It is a native of Brazil; but naturalists have furnished us with no account of it's habits in a state of nature. It has been domesticated in Europe; and is a restless, grunting little animal, continually running from place to place, and from corner to corner. It feeds on bread, vegetables, and grains. It is extremely prolific, breeding almost every two months, and bringing forth from four to twelve at a time: but numbers of the young are destroyed by cats; others are killed by the males; and the cold of this climate proves fatal to many more.

The flesh of this animal is by some esteemed delicious; but it rarely composes any part of the viands of the inhabitants of this country.

CAVY, ROCK. This animal, which is about a foot long, has a divided upper lip; short ears; four toes on the fore-feet, and three on the hind; and, like the common Cavy, is destitute of a tail. The upper part of the body is of the colour of the common hare; and the belly is white.

The Rock Cavy is a native of Brazil, and takes up it's residence in the holes of rocks. It's paces resemble those of a hare; it is hunted by little dogs; and it's flesh is superior in flavour to that of our rabbits.

CAVY, PATAGONIAN. This species has long ears, much dilated near the bottom; the upper lip is divided; and on each side of the nose there are tufts of soft hairs, and long whiskers. The face, back, and fore-parts of the legs, are cinereous; the breast and sides are tawny; the belly is of a dirty white; the rump is black; the legs are very long; the claws are straight and black; and the tail is extremely short.

This animal, which grows to a considerable size, is found in great plenty near Port Desire, in Patagonia. It burrows in the earth like the rabbit; and it's flesh, which is of a snowy whiteness, has an excellent flavour.

CAVY, SPOTTED. This animal, which is about ten inches long, is formed like a pig; and is by some authors called the hog-rabbit. It has five toes on each foot, and only the mere rudiments of a tail. The upper jaw is longer than the lower; the ears are short and naked; it has long whiskers; the upper part of the body is of a dark brown colour; the sides are marked lengthwise with lines of grey spots; and the belly is white.

This creature is found in Brazil and Guiana; and chiefly frequents fenny places, where it burrows under ground. It grunts like a pig, and bites severely. It grows very fat; and in Brazil it is esteemed a peculiar delicacy. According to Dampier, a variety of this species is found on the banks of the River St. Francis, entirely of a white colour.

CAVY, LONG-NOSED. This animal, which is about the size of a rabbit, has a long nose, a divided upper lip, short rounded ears, and black eyes. The hair is hard and shining, composed of a mixture of red, brown, and black; being of a bright orange colour on the rump, and yellow on the belly. It has black slender legs, four toes on the fore-feet, three on the hind, and a short naked tail.

This creature is also a native of Brazil and Guiana; and is a very voracious little animal. It grunts like a pig; and, resting on it's hind-legs, holds it's food with it's fore-feet when it eats, and conceals what it cannot devour. It runs very fast, it's motions resembling those of a hare. When pursued, it usually takes shelter in a hollow-tree; and, when irritated,

irritated, it's hair bristles on it's back, and it strikes the ground with it's feet. It's flesh is eaten by the inhabitants of South America, who esteem it very palatable; and the animal is capable of being domesticated, and rendered very tame.

There is also a less species than the preceding, of an orange-colour, which inhabits the same countries; and another found in Java and Sumatra, about the size of a hare, and of a reddish colour.

CAVY, CAPE. This animal, which is about ten inches long, has a thick head, full cheeks, and oval ears which are almost lost in the fur. The head is of the colour of that of the hare; the top of the back is dusky, mixed with grey; the sides and belly are of a whitish grey; and the shape of the body is thick and clumsy. There are four toes on the fore-feet, and three on the hind; and the tail is so short that it can scarcely be perceived.

This creature inhabits the mountains near the Cape of Good Hope, burrows under ground like a rabbit, and it's flesh is in high estimation among the inhabitants of that part of the world.

CAVY, MUSK. This animal is almost as large as a rabbit; the upper-part of it's body is black; and it's belly is entirely white. It inhabits Martinico, and the other Antilles islands; burrows under ground; and smells so strongly of musk, that it's retreat may be traced by the perfume.

CAVY, OLIVE. This small animal is very obscurely mentioned by naturalists; M. Barrere only informing us, that the colour is olive; and De Marchais, that it is esteemed delicate food. It is found in Guiana, and the islands of St. Lucia and Grenada; and lives in the woods on various kinds of fruits. It appears to have a great aversion to water; it is easily tamed; and, when it cries, which is but seldom, it makes a noise like that of the Guinea-pig.

CAY. A small Brazilian monkey of a deep black colour. It lives only in thick impervious woods; and usually sits on the branches of a particular kind of fruit-bearing tree, on the produce of which it subsists.

CAYMAN. A species of crocodile found in the southern parts of America, and on the coast of Guinea; more usually known among naturalists by it's Brazilian name *Jacere*.

Marcgrave asserts, that this animal has no tongue, but only a membrane lying even with the cavity of the lower-jaw, which however has the shape of a tongue, though it is incapable of elevation. This account agrees with what has been already advanced in the description of the alligator or crocodile, which in fact are the same animals. The eyes of the Cayman are large and round, of a bright grey colour, with black pupils; the fore-legs are shorter and weaker than the hind ones; and there are five toes or fingers on each, three of which are armed with nails, but the two others have none. The hind legs have only four toes, the outermost of which has no nail.

La Condamine observes that, throughout the whole course of the river of the Amazons, Caymans or alligators are very common; that some of them measure twenty feet in length; that they lie whole days, and even nights, stretched out and motionless, inasmuch that those who are unacquainted with those animals might naturally enough mistake them for the trunks of trees covered with a rough dry bark; that during inundations they sometimes enter the cottages of the natives; and that there have been frequent instances of their even attempt-

ing to drag a man out of a canoe in the sight of his companions, who have not been able to afford him any assistance.

CAYOPOLIN. An animal of the monkey kind, which bears a strong resemblance to the marmoset, except that it's snout is more pointed, and it's tail longer in proportion. It is of an ash-colour inclining to yellow, and is a native of the new world.

CEHOILOTI. A Mexican bird of the pigeon kind, covered with dusky feathers, except on the breast and the extremity of the wings, where they are generally of a palish white; and the irides are red.

CEIXUPEIRA. An American fish, esteemed very fine and delicate food, though of an enormous size. It grows from nine to ten feet in length, and is as thick as a man's body; being of an oblong figure, with a flattened head. There are no teeth in the upper-jaw; but the mouth, which is small in proportion to the size of the creature, is thick-set with small tubercles. The back and sides are black; the belly is of a fine bright white; and the fins are all black, except the ventral ones, which are white, with a border of black at their edges.

CENCHRAMUS. A term by which some naturalists express the *emberiza alba*, called in England the bunting.

CENCHRIS. The name given by many authors to the keshel, or windhover, a species of hawk of the long-winged kind called the *tinnunculus*; and, in England, the *stannel*.

CENEONTLATOTI. An American bird described by Nieremberg, and called by that author *avis polyglotta*. It is celebrated for the agreeable modulations of it's voice; which, in point of melody, are said to surpass those of the nightingale.

CENOTZQUI. A bird mentioned by Nieremberg, called *avis evocatrix nivis*, because it is always very clamorous before a fall of snow. It is very beautifully variegated; and is equally capable of enduring a warm or a cold climate, but shews a predilection for mountainous countries. It turns it's head round in every direction without moving it's body, so as to be capable of observing every object that approaches it with the greatest facility.

There is another species of this bird, called by some authors *liceto*, and which differs from the former principally in the disposition of it's colours.

CENTEPEE, or CENTIPES. An insect so called from it's great number of feet; and, for the same reason, also termed *millepedes* by some, though improperly, because that appellation is always bestowed by naturalists on hog-lice. It is very common in many parts of the world, especially between the tropics; and in the West Indies there are several species, the bite of one of which frequently proves mortal.

This creature is somewhat longer than a human finger, and as thick as a goose-quill, but more flat, and of the colour of rusty iron. It has a round head, with two small but very sharp teeth; and the whole body is divided into ten or twelve joints, and as many transverse black lines, at the bottom of each of which there are two pretty long feet. There are two small horns on the head, and the tail is forked. It is found principally among rotten wood. When touched, it is sure to bite; the wound inflicted produces the same effects as the sting of the scorpion; and the like remedies are applied in order to a cure.

CENTEPEE OF THE EAST INDIES. This species is about five or six inches long, of the thickness of a finger, and of a ruddy colour. It consists of many joints and bones; and has two claws or pincers, with which it wounds as dangerously as the scorpion, and excites the most excruciating pain. It lurks in holes, and among old furniture; and is seldom seen abroad except when molested.

CENTEPEE OF THE CAPE OF GOOD HOPE. This creature is about three inches long, and half as thick as a finger. It is covered with hair, and appears to have no eyes; but there are two feelers on the head, which serve to direct it's motions. It is highly venomous, it's bite being equally as dangerous as that of the scorpion. An European mariner was bit by one of these insects in such a terrible manner that his life was supposed to be in danger; but, by the application of roasted onions to the part affected, he soon recovered.

CENTEPEE, AFRICAN. This species is four inches and a half long, and as thick as a swan's quill. The colour of the whole body is of a shining brownish black; and to each division or incisure belongs a spot of a yellowish colour, sixty of which are arranged on each side. It is asserted by some authors, that though this insect be severed into two parts, both will continue in a state of animation. When irritated, it bites so very fiercely, as to wound the hand even through a thick glove. It has a forked mouth; and two feelers, for the purpose of warning it of approaching danger, as well as assisting it in procuring it's necessary aliment.

CENTEPEE, AMERICAN. This insect has a flame-coloured line running down it's back; and it's sides resemble brass. It has a vast number of feet, as small as hairs; an exceedingly small head; and, from it's moving with equal facility either backwards or forwards, it has been supposed to have two heads.

A variety of this kind, brought from Cape Augusta, was somewhat larger than the former; and had seventy livid divisions or incisions, and twice as many feet.

CENTEPEE, COMMON. This species is found in Great Britain. It is about an inch long; it's body is flat, thin, and of a brownish colour; and it's legs are short and yellowish.

CENTEPEE WITH THIRTY LEGS. This animal is not more than half an inch long, nor thicker than a wheat-straw. It is flat, and of a red colour; and it's last pair of legs, which are very long, give it the appearance of having a forked tail.

Linnaeus mentions only three sorts of Centepees; that with seventy feet on each side, that with twenty, and that with fifteen.

CENTRINE. A name given by some naturalists to the *porcus piscis*. It is properly of the galeus kind, but much thicker and shorter than any of that genus; and, from the head to the tail, is somewhat of a triangular figure; it's broad and flat belly forming one side of a triangle; and it's two sides, which unite at the back, the other two. This animal derives the name *porcus piscis* either from the shape of it's back, which, rising into a ridge, resembles that of a hog; or from it's being fond of wallowing in mud, after the manner of swine.

CENTRINES. A species of insects hatched in wild fig-trees.

CENTRISCUS. A genus of the order of nantes in the class of amphibia; the characters of which are, that the head is protracted into a very narrow

beak; that the aperture is recurved; that the abdomen is carinated; and that the belly-fins are united.

CENTRONIA. A name by which modern naturalists have distinguished the *echini marini*. Dr. Hill makes them a distinct series of animals, living under the defence of shelly coverings, each formed of one piece; and furnished with a vast number of spines, all moveable at the creature's pleasure.

The species of Centronia, though very numerous, may all be comprehended under the following general divisions: the roundish or subglobose kind, called by Klein *cidaris*; the cordated kind, called by that author *spattangi* and *spatagoides*; and the flat kind, called by him *placentæ*.

The above celebrated naturalist, who has shewn a considerable share of ingenuity in the arrangement, has divided these animals into a number of other genera; but they may be all ranked under one or other of the aforesaid divisions. Besides the known recent species, many are found in a fossil state of a very singular figure.

CEOAN. A bird common in the Spanish West Indies, and described by Nieremberg, who calls it *avis nivea*. It is somewhat larger than the European thrush; and is very remarkable for the facility with which it learns to imitate the human voice.

CEPHALUS. An Aristotelian name, applicable to the mugil or mullet; called by other authors *capito*.

Cephalus is also a name given by some naturalists to the fargus, called also *gardo*, and *gardon*; a fish scarcely distinguishable from the roach.

CEPHUS. The ancient name of a species of monkey known among moderns by that of *mona*. It is distinguished by it's colour, which is variegated with black and red; and it's tail is of an ash-colour, with two white spots on each side at it's insertion. It is a native of the northern parts of Africa.

The term Cephus is also applied to a bird described by Aldrovandus as resembling the gull in it's bill, feet, and legs; but, in other respects, approaching nearer to the duck kind. It is about thirteen inches and a half long from the tip of the bill to the extremity of the tail; and is covered with such an abundance of feathers, that it appears larger than it really is. The bill is of a moderate size, of a flesh-colour, ruddy on the sides, and black at the extremity. The irides are whitish; and the head, as well as the under-parts, are covered with white, brown, and yellow spots. The wings are blackish, with some yellow feathers at their tips; the greater tail-feathers are also blackish; the legs and thighs are of a green hue; but the feet and membranes between the toes are brown.

CEPOLA. A genus of the thoracici, in the class of fishes; the characters of which are, that the head is roundish and compressed; that the mouth is flat; that the teeth are crooked; that the branchiostegious membrane consists of six small bones; that the body is uniform and naked; and that the abdomen is scarcely as long as the head.

CEPULA. A name given by Gesner, and some other naturalists, to the common *tænia*. The term is derived from the Italian *cepolo*, the vulgar name of the fish in the markets of Rome. It is a species of the cepola.

CEPUS. An appellation given by some naturalists to those smaller kinds of monkeys which have a mixture of green in their other colours.

CERAMBYX.

CERAMBYX. The classical name for a kind of beetle.

CERASTES. A species of serpent called in England the horned snake, having two protuberances on it's forehead like shells, but of a more solid texture: these horns are frequently not larger than barley-corns. The teeth are like those of the viper, and placed in the same order. This animal, which partakes of the nature of viviparous serpents, is remarkable for it's almost total abstinence from water. It is found in Lybia; and also in Arabia, particularly near the town of Suez.

Cerastes is also a name given by the ancient Greeks to a stag arrived at it's full growth, or at the end of it's fourth year.

CERCOPITHECUS. A species of long-tailed monkeys. Aldrovandus, Marcgrave, and other authors, have given the figure and history of many of the Cercopithecii; and the former mentions some as large as mastiff-dogs, having tails five cubits long. In Brazil there is a yellowish species, which smells of musk.

These monkeys, when in danger of falling from trees, save themselves not only by their feet, but also by their tails, which they wrap round the boughs. The nation of the Zygantes, in Africa, esteem their flesh proper for food.

CEREBRUM JOVIS. A name given by the ancient poet Ennius to a peculiar fish of the labrus kind, called scarus by the generality of authors. It is distinguished by Artedi from the other species of the same genus by the name of the labrus, the scarus of naturalists.

CERIGO. An appellation given by many authors to that singular American animal called the opossum. The Americans, in some parts of the continent, call this creature carigüeya; and it is probable that the name Cerigo is only a corruption of that word, though it is generally received as a proper name, and used as such by Maffei, Barlæus, and Nieremberg.

CERNUA. A small fresh-water fish, called by authors the aurata, aspredo, and perca minor; and, in English, the ruffe. It is nearly of the shape and figure of the common perch; but, when arrived at it's full growth, seldom exceeds six inches: it differs also from that fish in being destitute of those black transverse lines with which the back and sides of the common perch are variegated. It is caught in many of our rivers, particularly in the Yare, at Norwich.

CERRUS. An appellation given by Pliny, and other ancient writers, to the fish called by the generality of naturalists *smaris*, and *mæna candida*. It is of the sparus kind, according to the Artedian system; and distinguished from the other fishes of that genus by it's having a black spot in the middle of each side, and in the pectoral fins and tail being red.

CERVUS VOLANS. The classical name for the stag-fly, or stag-horned beetle; a very large species of *scharabæus*, with sloping horns, somewhat like those of the stag. It is of a blackish colour; but the horns have sometimes a purplish cast, and in some few they have been found of the colour of red coral. This insect, when at it's full growth, is an inch and a half long.

The stag-beetle is commonly seen in Essex, and a few other counties of England. But, besides this species, there is another produced from a hexapode worm, of a deeper black than the former, the horns of which send forth only one branch.

CERYX. A name by which Pliny, and other ancient writers, have denominated the three genera of shell-fish since distinguished under the names of *buccinum*, *purpura*, and *murex*.

CESTREUS. A fish of the mullet kind, but whose head is much smaller and narrower; and the sides are variegated with shorter longitudinal lines. It is caught in most places; but it's flesh is esteemed greatly inferior to that of the mullet.

CETACEOUS FISHES. A term generally denoting all such large sea-fishes and beasts as resemble the whale. However, in a proper sense, the word Cetaceous denotes only those large fish which are viviparous, or bring forth their young alive; that have no gills, but respire through lungs like quadrupeds; which have but one pair of fins; and that suckle their young.

These animals scarcely differ from quadrupeds, except in the circumstance of their having no feet. They have no air-bladders; but are enabled, by means of the air received into their lungs in respiration, to render their bodies equiponderant to water.

In the ordinary acceptation of the term, Cetaceous is applied to all fish of the larger kinds, called by the Latins *belluæ marinæ*, or sea-beasts. In this respect, Cetaceous Fishes are divided into greater, including the whale kind properly so called; and lesser, to which belong the porpoise, shark, dog-fish, and many others; but these last are more properly termed cartilaginous fishes.

CETUS. See WHALE.

CHÆRUS. A name given by Strabo, and some other ancient authors, to the fish called caprisus by the moderns. See GOAT-FISH.

CHÆTIA. A species of insects of the apteria kind, without any visible limbs. The Chætia resembles a hair, or rather a piece of fine thread; it's surface is smooth; and it's body rounded, and very slender. In England it is called the hair-worm.

CHÆTODON. A genus of the acanthopterygious or thoracic fishes; the characters of which are the following: the branchiostegious membrane on each side contains five or six small bones; the body is compressed, thin, and short; the back has but one fin, which reaches it's whole length; the tail is large, and, exclusive of it, there are six other fins; the mouth is small; and the lips may be opened and extended, though, naturally, they cover a part of the teeth; the teeth in the jaws are oblong, contiguous to each other, and flexible; the scales are rough; and the eyes are not covered with the skin of the head.

CHAFFER. A sort of beetle.

CHAFFINCH. A species of the *fringilla*, a well-known bird, which begins it's song early in the spring; but, towards the close of summer, assumes a chirping note. It may be properly termed a native of Great Britain, as both sexes continue in this country during the whole year: but, what is very remarkable, the females migrate in flocks from Sweden to Holland in the month of September; and in the spring return to their mates.

This bird builds it's nest almost of the same materials as the goldfinch, except that the inside has the addition of some large feathers, and lays four or five eggs, of a dull white colour, tinged with deep purple. The feathers on the forehead are black; the bill is of a pale blue, with a black tip; the crown of the head, as well as the hind-part and sides of the neck, are of a blueish grey; the space
above

above the eyes, the cheeks, the throat, and the fore-part of the neck, are red; the sides and belly are white, tinged with red; the upper part of the back is of a deep tawny colour; and the lower part, together with the rump, are green. The coverts on the ridge of the wing are black and grey; the bastard-wing and the first greater coverts are black; and the rest are tipped with white. The quill-feathers are black; their exterior sides are edged with pale yellow; and their inner and outer webs are white on the lower part. The tail is black, except the exterior feather, which is marked obliquely with a white line from top to bottom; and the legs are dusky.

The colours of the female are very dull, and she is entirely destitute of the beautiful red which is found on the breast of the male. The head, and the upper part of the body, are of a dirty green; the belly and breast are of a dirty white; but the wings and tail are marked like those of the male.

As Chaffinches are naturally very hardy, they may be taken from their nests when about ten days old, and brought up with facility; and, during the months of June and July, the young flight may be easily caught in nets near the watering places they frequent. Some bird-fanciers cruelly deprive these inoffensive animals of their sight, by thrusting red-hot wires into their eyes; but this barbarous practice, whatever purpose it may answer, is surely disgraceful to humanity.

CHALCHUS. A Grecian name for the fish usually called the doree. It seems to have obtained both names from its colour; the one from the word Chalchos, Brass; and the other from Doree, Gilded.

CHALCIDICA. A species of serpent so called from the resemblance of its colour to the chalcidony. Its bite is succeeded by a pellucid tumour, with a shining blackness at the margin. According to Paulus Ægineta, it cures its own venom, drank in wine. It is sometimes called seps.

CHALCIS. A name given by some authors to the pilchard; and called by others celerinus and apua membras.

CHALCOMUIA. A species of fly whose wings have the effulgence of polished brass. It is an insect of the carnivorous kind, and feeds on other flies, beetles, and even dead serpents: whence it has been also called by some ophioborus; and, by others, helycius.

CHAMA. A genus of large bivalve shells; the characters of which are these: they are commonly smooth, though in some places a little rugose; and, in a few species, there are numerous spines. The valves of the shell are equal, elate, and convex; and the mouth gapes, as in the oyster.

The inclosed animals have all of them a hot pungent taste, and inflame the mouth to a very great degree. From this circumstance the French have given them the name of flames and flammets; and, in some provinces of their country, they are called lavignons and pelourdes.

The ancients engraved a diversity of figures on the various species of this shell; and, conformably to their fancy, they could give the distinct parts of the imprinted figure the colours of the several coats of the shell by the depth of the incision: thus they could impart to human flesh its natural white; and to the chiefs a blue or yellow tinge, according to the nature of the species of Chama on which the work was performed. Several of these antique works are still extant; and probably this was the first invention of that sort of engraved gem called camea.

CHAMELEIA. An appellation given by some naturalists to a peculiar species of chama; but generally applicable to such of them as have smooth surfaces, of which there are a great number.

CHAMOIS. An animal of the goat kind, known among naturalists by the name of rupicapra. It has slender, black, upright horns, hooked at their extremities, and behind each there is a large orifice in the skin, supposed by some for the purpose of respiration; but there is not the smallest foundation for this opinion, as it is well known that there is no perforation through the skull, nor are there any ducts discoverable from these orifices. The forehead is brown; the cheeks, chin, and throat, are white; the belly is yellowish; and the rest of the body is of a deep brown colour. The hair is long; the tail is short; and the hoofs are much divided like those of the rest of the goat kind.

This animal inhabits the Alps of Dauphiné, Switzerland, and Italy; the Pyrenean mountains; the mountains of Caucasus and Taurus; and the countries of Greece and Crete. It generally feeds before the sun rises, and after it sets; and during the winter conceals itself in the clefts of rocks, in order to avoid the falls of the Avelanches. At that season it subsists either on the tender twigs of trees, or on the roots of plants or herbs, for which it digs under the snow. These creatures are equally timid and vigilant: each herd has its leader, which stands as centinel on some eminence while the rest are collecting their food; and, on the first discovery of an enemy, it alarms the whole troop by a kind of hiss, who instantly seek protection in flight.

These animals have very piercing eyes, and their senses of hearing and smelling are exceedingly quick and strong. They are also excessively swift and active; and the pursuit of them is a very laborious employment, as they can only be overcome by surprise. They are hunted principally for their skins; and their flesh is by no means despicable food. In their stomachs there is often found a hairy ball, covered with a hard crust of an oblong form. They live to a great age; and bring forth two, and sometimes three, at a time.

CH'ANCERONS. The French name of a small caterpillar which destroys an immense quantity of corn in their granaries. The butterfly which produces this noxious insect has white wings marked with black spots. The caterpillar, when first hatched, is one of the smallest with which naturalists are acquainted. It spins a vast number of fine threads as soon as emancipated from the egg, by which it attaches itself to whatever objects are most contiguous. Towards the end of summer, these caterpillars quit the corn, and mount up the walls of the granaries, in order to search for proper retreats; which when they have found, they enter, cover their whole bodies with webs of silk of their own spinning, and in due time assume their aurelia form. In this state they remain the whole winter, seemingly without either life or motion; but, in the months of April and May, the butterflies are hatched from them; and the males and females then coupling together, the latter immediately lay their eggs, and thus give rise to a new progeny, which, during the summer season, consume the corn under the form of caterpillars. The female protrudes a kind of tube from her tail, by means of which she forces her way into the grain, and lodges her egg, which in the space of fifteen or sixteen days is hatched into a caterpillar; and no sooner does it assume this form, than it begins to devour the corn with the utmost

utmost avidity, and soon marks its situation by the quantity of husks which it strews all around it.

CHANE. An Aristotelian appellation for the fish called by other authors *hiatula*, *chauna*, and *chaunus*. It is a genuine species of the *labrus*; and is distinguished by Artedi under the name of the fork-tailed *labrus* with the lower jaw longer than the upper, and with black transverse lateral lines.

CHANNA. A Mediterranean fish very like the sea-perches, among which it is frequently exposed to sale in the Italian markets.

It is said that, among all fish of this kind which have been examined by naturalists ever since Aristotle's time, none but females have been found. Whether this assertion be true or false, it is perhaps very difficult to determine; and, should it be proved in the affirmative, the only conclusion which could be drawn from it is this, that the *Channa* is no distinct species, but only the female of some other fish.

CHANNADELLA. A name given by Bellonius, and some other authors, to a species of the *labrus*, called also *fachettus*, and *hepatus piscis*.

CHAR. This fish inhabits the lakes of the north, as well as those of the most mountainous parts of Europe. It shews a strong predilection for clear and pure waters; and is seldom known to wander into running streams, except their bottoms are similar to those of its native lakes. It is found in great abundance in the cold bodies of water on the summits of the Lapland Alps; and is almost the only fish which is met with in any plenty in those inhospitable regions. There are but few lakes in Great Britain which produce this curious fish; and, even where the breed is preserved, it never becomes numerous. It is found in Winander Mere, in Westmorland; in Llyn Quellyn, near the foot of Snowdon, in Wales; and in Loch Inch, and other neighbouring lakes, in Scotland; but whether it is found in Ireland or not, we are not competent to determine. Mention has been made by naturalists of the case Char, the red Char, the silver or gilt Char, and the gelt Char; but, on a close examination of each variety, it has been impossible to discover any specific difference sufficient to constitute so many distinct species.

The body of the Char is longer and more slender than that of the trout; the back is of an olive colour, speckled with whitish spots; the belly is generally red, especially in the females; the scales are very small; and the lateral lines are straight. The mouth is wide; the jaws are nearly equal; the lower parts of the fins are of a vermilion dye; and the gills are quadruple. The Char is furnished with teeth both in the jaws and on the tongue, and in the upper-jaw it has a double row. This fish is very scarce, and its flesh is soft and tender; on both which accounts it is in high estimation.

CHAR, GELT, OR BARREN CHAR. This species differs principally from the former in not having spawned the preceding season. It is more slender than the red Char; the back is of a glossy hue; the sides are silvery, mixed with blue; the belly is spotted with pale red; the sides of the belly are of a pale red; and the middle is white. This variety is found only in those lakes which are inhabited by the red Char.

CHARADRIUS. The name by which Gesner and Aldrovandus have called the *cedicnemus*, a bird known in England by the title of the stone curlew. The term *Charadrius* is also applicable, in the Linnæan system of zoology, to a distinct genus

of birds of the order of *grallæ*: the distinguishing characters of which are; that the feet have each three toes, that the point of the bill is cylindrical and obtuse, and that the nostrils are linear. There are twelve species of this genus.

CHARAX. An appellation given by several Greek writers to the fish called *carassius* by the moderns. It is properly a species of *cyprinus*, and usually distinguished by the name of the *cyprinus* with twenty rays in the back fin and the lateral line straight.

CHARMA. A sea-fish which agrees in many particulars of its conformation with the sea-wolf. The lower jaw is longer than the upper, and gives the mouth the appearance of being always open. The teeth are sharp; the eyes are small; and the back is of a blackish red. The lines which run from the head to the tail are reddish; and the tail is sprinkled with red spots, as well as the fin behind the vent, which runs to the tail.

CHAT-PARD. An animal of the leopard kind; which, when dissected by the French academicians, disclosed to view a defect in the spermatatic vessels, and other parts absolutely necessary to generation; nor did this imperfection appear to be either the effect of castration or of accident. See **PARDUS**.

CHATTERER. A genus of birds of which only two species have as yet been described by naturalists.

CHATTERER OF BOHEMIA. This bird sometimes visits England; and about the month of February it is annually seen in Scotland, in the vicinity of Edinburgh, feeding on the berries of the mountain-ash; and also as far south as Northumberland, where it subsists on the berries of the white-thorn. But the native country of the Chatterers is Bohemia, from whence they wander over Europe; and were formerly regarded by the superstitious of some countries as the certain presages of a pestilence. These birds are gregarious; they feed on grapes in those places where vines are cultivated; their flesh is esteemed as highly delicious; and they are easily tamed.

The length of the Bohemian Chatterer is about eight inches; the bill is short, thick, and black; the base is covered with black bristles; and from thence a black bar passes to the hind-part of the head over each eye. The head is adorned with a sharp-pointed crest, which reclines backwards; the irides are of a bright ruby colour; the cheeks are tawny; and the throat, which is black, has a small bristly tuft in the middle. The head, crest, and back, are ash-coloured mixed with red; the breast and belly are a pale chestnut dashed with a vinous cast; the vent-feathers are a bright bay; the lower part of the tail is black, the end being of a rich yellow; and the feet are also black. The lesser coverts of the wings are brown, and the greater are black tipped with white. The quill-feathers are black, the three first being tipped with white; and the six succeeding ones have half an inch of their exterior margin edged with a vivid yellow, and their interior with white. The horny appendages proceeding from the tips of seven of the secondary feathers, which have the colour and gloss of the finest red sealing-wax, distinguish this bird from all others; and the mark of distinction between the male and the female is, that the latter wants the yellow margins to the wings.

CHATTERER OF CAROLINA. This bird is scarcely seven inches long from the tip of the bill

to the extremity of the tail. The bill is short, a little arched on the top of the upper mandible, and of a blackish colour; and round it's base there are small black feathers which form a bar reaching beyond the eyes. This bar is bordered with white both above and below the eyes; and on the top of the head there are several long feathers composing a crest, which the bird is capable of erecting or depressing at pleasure. The head and neck are of a reddish-brown colour; the breast is whitish; the belly and thighs are of a pale yellow; the covert-feathers beneath the tail are of a light colour; and the back is of a dark brown. The rump, as well as the covert-feathers on the upper-side of the tail, are of a light ash-colour; the wings on the upper-side are cinereous; but the greater quill-feathers are of a darker hue than the rest, though the margins of the exterior webs are of a light ash-colour. The inner webs of the three interior quills on each wing next the back are white to the tips; and seven or eight of the middle quills of each wing have small oblong unctuous substances depending from them, not unlike red sealing-wax both in colour and consistence. The tail is of a dark ash-colour, the tips of the feathers being of a fine golden yellow; and the legs, feet, and claws, are black, and of the usual conformation.

The hens of this species are less vivid in their colours than the cocks, and are destitute of the red appendages at the tips of their wing-feathers.

CHAYQUARONA. The Portuguese name for a fish of the turdus kind, caught on the Brazilian shores; more frequently called by it's native appellation, piraumbu.

CHEGOE. An American insect, called chique by the French, and negas by the Spaniards. It is very small, of a black colour, and generally found among ashes and other filth. It penetrates through the stockings with facility, and generally lodges itself under the toe-nail, and the more prominent parts of the skin. At first it produces a pain somewhat similar to the bite of a flea, and afterwards eats the flesh so gently as only to occasion a slight itching; but by degrees this creature grows bigger, till at length it becomes of the size of a large pea, when it produces nits which lodge round the parent insect; and, if proper care be not taken, they increase so prodigiously, that a putrefaction of the surrounding flesh ensues, which produces malignant ulcers, and sometimes gangrenes.

These insects not only infest the human species, but also monkeys, cats, and dogs. The most effectual way to prevent their attacks, is to wear thick stockings; and to bathe the feet often, particularly in sea-water.

CHELIDON. An appellation given by many of the ancient Greeks to a kind of flying-fish, called by some authors milvus and hirundo; and, by others, accipiter, or the hawk-fish. It is properly a species of the trigla; and is distinguished by Artedi under the name of the trigla with the head a little aculeated, and a singular member near the pectoral fins. This method of reducing fish to their true genera, and distinguishing them by their proper specific names, seems to be the most effectual way of acquiring a perfect knowledge of them. The arbitrary names of milvus and hirundo convey so imperfect an idea of the particular fish, that they might be as well applied to one species as another; and accordingly we find two or three different sorts of the trigla denoted by the inconclusive name of milvus.

CHELIDONIUS. The name of a certain fly, which some authors call the swallow-fly on account of it's velocity in flight. It is generally of a brown colour, with black prominent shoulders, a black head, and short black antennæ. The wings are silvery, and edged with black. It often continues for a considerable time on the leaves of plants; but, being very quick-sighted, it avoids every hostile approach; and, from the length of it's flights, is not easily caught.

CHELON. A fish of the mullet kind, which strongly resembles the common mullet in it's general shape, but it's eyes are more prominent, and it's head is smaller. It has also two side-lines running from the head to the tail, very evenly ranged, and placed at equal distances; and it's lips are remarkably thick and prominent.

CHERMES. A genus of four-winged insects; the characters of which are, that the rostrum or beak is situated under the breast; that the abdomen is mucronated or pointed at the hinder extremity; and that the legs are formed for leaping.

These insects, which are in English called bugs, derive their particular distinctions from the plants or trees on which they feed. Linnæus enumerates eight sorts; namely, that of the elm, the maple, the beech, the elder, the fir, the willow, the ash, and the nettle. Besides these, he mentions another species, which is supposed to breed in the head of the cerastes, or horned serpent.

CHERSYDRUS. An amphibious serpent, so called from it's living at first in watery places, whence it receives the name of hydrus; after which it shifts it's habitation, and remains on dry ground, and from thence it derives it's compound appellation of Chersydrus.

CHEVALIER. A bird called by some English naturalists the horseman, of which there are several species. It is about the size of a pigeon, and extremely well feathered. The bill is long, reddish near the point, and black near the base; and the head and legs are wholly black. The neck, back, and breast, are white; but the remainder of the upper-part is black. The wings are blackish, and have a white transverse line on each side. It is called the Chevalier, or horseman, because it stands high on it's legs; and some fanciful authors have supposed that this circumstance gives it the appearance of being mounted on horseback. It frequents lakes, meadows, and the margins of rivers, and wades into the water as high as the thighs. It's flesh is very delicate, and well flavoured. In some countries this bird is called crex, on account of it's voice, which seems to express that syllable; but it is never seen in England.

CHEVALIER, RED, OF BELLONIUS. The feet of this species are of a yellowish-red colour; the bill is short; the head and neck are of a dark ash-colour; and over the eyes there is a white line. The feathers under the wings are cinereous; and on each side of the temples there are two black spots.

CHEVALIER, RED-LEGGED. This bird is sometimes seen in this country, but not very frequently. It derives it's name from the colour of it's legs, which are of a bright red. The top of the head and the neck are of a fine light brown; the bill is slender, near two inches long, of a reddish colour at the base, and black at the extremity. The covert-feathers in the middle of the wings are black, but within two inches of the end of the tail they are brown, edged with white. This species measures near eighteen inches from the point of the bill

to the end of the claws; and the breadth, when the wings are extended, is two feet.

CHEVIN. A name used in some parts of England for the capito, or chub.

CHEVROTIN. A beautiful animal, sometimes called the Guinea-deer, the least of all cloven-footed quadrupeds, and perhaps the most elegant. Its legs, at their smallest parts, are not much thicker than the shank of a tobacco-pipe. It is about seven inches high, and about twelve from the point of the nose to the insertion of the tail; and of a most delicate shape, being completely formed like a stag in miniature, except that its horns, when it has any, are more of the garelle or antelope kind, being hollow and annulated after the same manner. It has two canine teeth in the upper-jaw; in which respect it differs from all other animals of the goat and deer kind, and thus makes a distinct genus of itself. The colour of this singular animal is no less pleasing than its conformation; the hair, which is short and glossy, being in some of a beautiful yellow, except on the neck and belly, where it is white.

These animals are natives of India, Guinea, and the warm climates between the tropics. They are amazingly swift; nevertheless, the negroes often overtake them, and knock them down with their sticks. They are easily tamed, and soon become very familiar and agreeable; but such is the delicacy of their constitutions, that they cannot exist except in the hottest climates. The males of the Guinea sort are furnished with horns; but the females are destitute of them, as well as all the varieties to be found either in Java or Ceylon, where they chiefly abound.

CHICKEN. The young of the gallinaceous order of birds, and especially of the common hen.

CHICUATLI. The Indian name of a bird described by Nieremberg, and by him called *noctua canora*. Its beak is long, black, and slender; and its head is marked with undulated streaks of yellow near the eyes. The breast and belly are whitish; it has some black feathers intermixed with white on the throat; and the back is variegated with black, yellow, and grey.

It principally frequents mountains, where it runs on the ground, unless alarmed by some approaching danger. It is easily bred, and almost every kind of food agrees with it. In the hotter climates this bird is very plentiful; and its flesh is generally fat and nutritive.

CHIEPA. A name given by some authors to the fish more generally called *alaufa*, and known in England by the appellation of the shad, or the mother of herrings.

CHIMPANZEE. An Angolan animal of the ape kind, a variety of the ourang-outang, or great ape, very nearly approaching to the human figure, but of a fierce and malicious disposition. About forty years since, one of these creatures was imported into England by the captain of a ship in the Guinea trade. It was of the female sex, and about two feet four inches high; it naturally walked erect, was hairy on some parts of its body and limbs, and very strong and muscular. It was satisfied with the coarsest food; but shewed a peculiar fondness for tea, which it drank out of a cup and saucer in the usual manner. It slept like the human species; and uttered some inarticulate sounds, in imitation of the human voice.

The male of this species is very bold, and will venture to attack an armed man. It is said that

they often seize on the negro women in the woods, and force them into their horrid embraces. The creature which was exhibited in England was only twenty months old, and very tame. The parent held it in her arms in its native country, and did not resign it till she was killed with a spear by one of the natives, when she was found to measure five feet in height. A male of this kind has been described by Dr. Tyson. See **APE, GREAT**.

CHINCH. A genus of insects described by Dr. Hill as furnished with four feathery wings. The antlers are composed of a few oval joints, the extreme one running out into a point; the tail is split, and setous; and the feathers, which are placed as wings, consist of jointed ribs, thin flat plates being regularly placed over them. These animals are so extremely small, that they have in a great measure escaped observation. Few of those naturalists who have studied these minute insects, have been able to trace many of them; and, from such as have, very little of their nature is to be learned, as the lucernal microscope is absolutely necessary to assist the naturalist's researches, and this invention is but of modern date. Those creatures in the insect world to which the Chinchies approach the nearest, are the feather-wing moths; but from these they differ abundantly in the structure of their antlers, the shape of their bodies, their motions, and the peculiar formation of their tails. The substance which composes the wings of the Chinchies, though in appearance they very much resemble the plumes of birds, are in reality very different; for they have nothing feathery in them, but are solely composed of hollow jointed ribs, not unlike some of the corallines; and the seeming hairs, or plumes, which cover them, are flat, thin, conic scales.

CHINCH, STRAW-COLOURED. Each wing of this species is composed of one distinct, undivided feather; the head is of a lemon-colour; the eyes are of a delicate blue; the antlers are of a very pale brown, but ruddy at the base of each joint; and the feelers are pale, and small. The trunk is of a light straw-colour; the scutcheon is somewhat greenish; the body is of a pale straw-colour, and the lines which intersect it are whitish. The legs are a pale brown, but of a deeper cast at the joints; the wings are whitish, with a shade of brown; and the tail is amber-coloured.

Dr. Hill, to whom we are indebted for the description of the Straw-Coloured Chinch, informs us, that this creature fell under his cognizance in the following very singular manner. A gentleman very subject to the head-ache, (which complaint his physician attributed to his studious disposition) sneezing one day with great violence as he was writing, observed some atoms presently afterwards on a sheet of white paper which lay before him; and, as they plainly moved, he folded them up, and brought them to the doctor; who having laid a few of these animalcules before the lucernal microscope, found them to be Straw-Coloured Chinchies, usually inhabiting the flowers of the plant *mignonette*, which, on enquiry, he found the gentleman kept in his chamber.

CHINCH, TAWNY. The characters of the genus are in no species more distinctly seen than in this. Each wing is composed of two feathers, rising from a simple base; the head is of a dull yellowish brown; the eyes are large, and of a fiery red; the antlers are firm, a little hairy, very sharp at the points, and of a pale-brown colour. The feelers are short and dusky; the trunk is brown, covered

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covered with pale hairs, and variegated with a dead yellow; the body is of a tawny brown, divided by dusky rings, and covered with short, firm, whitish hairs, which the animal can erect at pleasure; the legs are of a dusky brown, strong-jointed, and furnished with forked, hard, horny toes, having some stiff hairs on them. The wings are of a pale dusky yellow, their ribs being beautifully jointed, and evidently hollow; and the scales, which constitute what are called the hairs, or feathery substances, are very numerous, narrow, and sharp, both at their edges and points.

This little animal lives in the hollows of the flowers of plants, like the straw-coloured Chinch; and seems calculated to do at least as much mischief, being equally as minute, more covered with hairs or short bristles, and to all appearance, both from its structure and motions, able to drive them into the tender membranes of the brain with more force. It leads an erratic life, wandering from flower to flower; however, it shews a predilection for those which are sweetest. The damask rose, the stock July-flower, and the wall-flower, are often covered with these insects; nor do they disdain the lupine and the pea.

How far head-aches may be attributed to these little creatures, is a subject which has as yet been but imperfectly investigated. Certain, however, it is, that many feel this complaint after smelling nosegays; and some have died of the effects produced from large quantities of violets and other flowers lodged in their chambers. Physicians, indeed, have ascribed the deaths of many of their subjects to the powerful odours of these plants; but it is much more probable that they originated from these insects.

CHINESE FISH. This fish is of a round figure, and about a span long; has a head like an eel, small eyes, and a long tail; and is green on the back, and white on the belly. It is a fresh-water fish; and is esteemed salubrious when caught in running streams, but otherwise when taken in ponds and stagnant waters.

CHITON. A genus of multivalve shells, the inhabitant of which is the doris. The shell is plated, and consists of many parts, lying transversely on each other. The species are numerous; but the following are found on the British coasts.

CHITON, HAIRY. This species has seven valves; and is thick-set with short hairs. The shell is five-eighths of an inch long.

CHITON, MARGINATED. This animal is found on the coasts of Yorkshire. The shell is composed of eight valves; and the margin is serrated and reflected.

CHITON, SMOOTH. This species is found on several parts of the Caledonian shores. The shell consists of eight valves, entirely smooth; with a longitudinal mark along the back, which is a little elevated. Its size is equal to that of a wood-louse.

CHIUREA. An appellation given by Cardan, Oviedo, and some other authors, to the opossum.

CHLOREUS. A name given by some naturalists to the common yellow-hammer, or emberiza lutea.

The term Chloreus is also used by many of the earlier writers to express the galbula, a very elegant and beautiful bird of the thrush kind, almost entirely of a yellow colour.

CHLORIS. A bird commonly called in England the green-finch, a well known warbler, of the size of a sparrow, and remarkable for its green co-

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lour, as well as for the largeness of its beak; in which respect it approaches to the coccothraustes. It builds in hedges, and feeds on the seeds of vegetables.

CHOEROGRYLLUS. See HEDGE-HOG.

CHOIROS. An Aristotelian appellation for the cernua, or acerina, of the Latins; in English, the ruffee. This fish has received a variety of names; but it is properly a species of perch; and is distinguished by Artedi from the others of that genus under the title of the perch with only one fin on the back and a cavernous head.

CHONDROPTERYGII. A Linnæan term for one of the great classes or families of fishes; the characters of which are, that the rays of the bones are not finny, but cartilaginous; that the bones of the body are also cartilaginous; and that the mouth in the generality of the species, is placed in the lower part of the body. The name is derived from Chondros, a Cartilage; and Pterugion, Fin, or Wing.

CHOUGH, CORNISH. This bird, which appears to be of the magpie kind, is about seventeen inches long, and thirty-three broad, when the wings are extended. It weighs about twelve or thirteen ounces; and is almost as large as the crow, and nearly of the same shape. The bill, legs, and feet, are red; but the feathers all over the body are black. It is remarkable for the uncommon softness of its modulations when it applies for food to those who usually care for it; and equally remarkable for its frightful shriek when any strange object approaches it. It is usually kept about houses in Cornwall; where it becomes tame like the raven or magpie, and is equally mischievous, delighting in purloining money, or any splendid bauble which comes in its way. In its wild state, it is very apprehensive of danger; and accordingly builds its nest in the most inaccessible cliffs, and in the middle of the steepest rocks. When tamed, it is very amusing, docile, regular, and constant to the habits it acquires. It goes early to roost; and, during tempestuous weather, generally takes shelter in some unfrequented place; but, in a mild and serene season, it sits either on the ridges of houses, or struts about on the ground in a very stately manner.

Aldrovandus thinks that this bird is peculiar to the Alps; but it is also found in Crete, Ireland, and Wales, as well as in the county of Cornwall.

CHOUX. A name given by some naturalists to a species of shell-fish of the cordiform or buccardium kind. Fabius Columna has described it in a very elegant manner; and Lister has exhibited a double representation of it. See HEART-SHELLS.

CHREMPS. The Grecian name of the fish called chromis by naturalists. It is a species of the sparus; and is distinguished by Artedi under the name of the sparus with the second ray of the belly-fins very long.

CHRISTOPHORUS PISCIS. A name sometimes given to the faber; or, as it is generally called, the gilded fish.

CHROMIS. A small fish caught in the Mediterranean, seldom exceeding three inches in length, of a moderate thickness, and of a dusky brown colour. Artedi, who accurately examined this animal, does not allow it a distinct generical name, but makes it only a species of his genus of sparus, styling it the sparus with the second ray of each belly-fin carried to an extreme length.

Chromis is also a name used by Bellonius to express a large fish caught in the Mediterranean,
more

more usually described under the appellation of the umbra.

CHRYsalis. A term in the history of insects of similar import with *Aurelia*, for which it is indiscriminately used.

The word *Chrysalis*, from *Chrusos*, Gold, seems to imply a peculiar yellow, or golden colour, usually found in the nymphæ of some species of insects; but this is merely accidental, as it is not perceptible in all nymphæ. Some, however, confine the extent of the appellation *Chrysalis* to the nymphæ of butterflies and moths.

CHRYsomELA. A genus of insects frequently confounded with beetles, the antennæ of which are formed like bracelets, or necklaces of beads, and are thickest towards their extremities. The body is of an oval figure; and the thorax is oblong and rounded. This genus contains a variety of species.

CHRYsomELA, BLUE-GREEN. This is one of the largest species of the kind, though far from being a conspicuous insect. The head is small, the legs are slender, and the belly is smooth. The back is roundish, or convex; and the colour is an admixture of blue and green, with a very fine tincture of gold-colour diffused over the whole. The margins of the cases of the wings are somewhat prominent, and marked with a few hollow small spots entirely surrounding them; and the feelers, legs, and belly, are green. It is commonly found in meadows during the months of May and June.

CHRYsomELA, RED-BREASTED. The cases of the wings of this insect are reddish; and the head is small and black, as well as the body, legs, and the lower part of the breast and feelers. It is seen on some species of willow-trees in June and July.

CHRYsomELA, BLUE-GREEN, with a red breast and thighs. The head and cases of the wings of this small animal are of a beautiful shining green, with a tinge of blue; there are a few hollow spots on the head; the breast is small, convex, and of a reddish colour, with a cast of blue-green; and the upper parts of the legs are reddish, and the under black. It is common in most parts of this kingdom.

CHRYsomELA, BLACK. This pretty large insect is entirely black. The breast and cases of the wings are marked with small hollow points placed very near each other; the wings are flexible, soft, and blunt; and the feelers consist of twelve joints. It resides in quarries, and has a slow, creeping motion.

CHRYsomELA, SMOOTH BLACK. The bases of the feelers of this insect are yellowish; the joints of the wings are neither hollow nor striated; but the black colour with which this animal is covered exhibits a blueish cast.

CHRYsomELA, PURPLISH BLACK. This insect is found on the birch-tree, on the leaves of which it feeds. The colour is a blackish blue inclining to purple, or rather to violet; the belly, feet, and feelers, are black; the head and breast are marked with minute hollow, irregular points; the cases of the wings are streaked; and the eyes are so small as to be hardly perceptible.

CHRYsomELA, PURPLISH BLACK, sprinkled with hollow points. This species nearly resembles the former, except that it is larger, and that the cases of the wings are marked with hollow points irregularly dispersed, but not streaked. It is found, during the vernal season, on alder-trees.

CHRYsomELA, PURPLISH BLACK, with the breast

yellow. This insect frequents the willow, and is entirely of the same colour, shape, and size, of the former, except that the breast is yellow on the sides, round in the middle, and of a violet-colour, but somewhat blacker on the centre. The head and lower belly are black; and in the middle of the red on the breast there appears a black point.

CHRYsomELA, SHINING GREEN. The breast of this insect is smooth; and the cases of the wings are marked with hollow points, which touch each other. Towards the vent, this animal becomes of an obtuse figure; and it seems to expand the cases of its wings with difficulty. The feet and feelers are black; and the breast is very slightly marked with points. It is found on willows.

CHRYsomELA, SHINING GREEN, with the breast hollow before. In this species the breast is only hollowed at the top; and in other respects it resembles the preceding.

CHRYsomELA, SHINING GREEN, with a flat breast. This species differs from the former in being somewhat less, and of a rounder figure.

CHRYsomELA, PALE GREEN. This insect is found on willow-trees; and is distinguished from the other varieties by the paleness of its colour, and the nine rows of points placed lengthwise on each case of the wings. The eyes are black; and the bottoms of the feet are white.

CHRYsomELA, RED, with a cylindraceous breast. The flower-de-luce affords shelter to this variety. It is of the middle size; the breast, the cases of the wings, and the top of the head, are red; but the feelers, eyes, knees, belly, breast-plate, and the under-part of the head, are black. The breast-plate, which is considerably narrower than the cases of the wings, is hollow on each side; and the cases of the wings themselves are marked with hollow points of a moderate size.

CHRYsomELA, COPPER-COLOURED. This animal is commonly found on willows, is of a middle size, and appears like red copper highly polished.

CHRYsomELA, BLACKISH BLUE, with red cases to the wings. This insect is found on the poplar-tree in the beginning of spring. It is a pretty large animal; its red wings are marked with small points; and the extremity of each case of the wings has a black spot. The breast is smooth, and of a greenish-black colour; and the corselet, belly, and feet, are of the same colour; but the feelers are black. The cases of the wings of this kind are not composed of plates, or leaves, but seem to be made up of eleven joints, the last of which is the largest.

CHRYsomELA, RED, CYLINDRICAL-BREASTED, with red cases to the wings. This species is found on the branches of the asparagus, on the stalks of which it subsists. It is a small insect; the head is of a blackish blue colour; the feelers are black; and the breast, which is narrow and cylindrical, is marked behind with two black points. The cases of the wings are oblong, yellow, and very pale on their external edges; and on each of them there is a blue spot resembling a cross.

CHRYsomELA, GREEN-BREASTED, with red cases to the wings marked with a blue cross. The colour of the head and breast of this insect is a copper green; the feelers and feet are black; and the tints over the whole body are elegant and attractive.

CHRYsomELA, OBLONG BLACK, with red cases to the wings marked with four black spots. This is a pretty large species, and of a roundish shape. There are two large spots on each case of the wings,

the first of which is oval, and the last more circular. The feelers are almost dentated; and the breast is short.

CHRYSOMELA, RED, with the cafes of the wings marked with five black spots. This insect is found on the willow-tree, and is one of the largest of the kind. The head is black; the breast is red, except in the middle, where it is black; on each of the cafes of the wings, which are red, there are five large black spots of an unequal size; and the belly and lower parts of the feet are black.

CHRYSOMELA, LONG DUSKY, with an incurvature stamped on the cafes of the wings. The breast of this insect is grey, slightly covered with white hair; and the cafes of the wings are of a greyish brown, with a white mark on each of the figure of the Roman S.

CHRYSOMELA, WITH DUSKY WINGS. This species is no larger than a flea; the body is black; the breast is brown; and the wings are livid on their back parts.

CHRYSOMELA, LIVID. This variety is likewise small; the eyes are black and shining; and the colour is a pale livid.

CHRYSOMELA, REDDISH ON THE SUPERIOR PART. On the breast of this species there are two black spots, and several on the cafes of the wings; the head is black; and the size is moderate. This creature frequents poplar-trees.

CHRYSOMELA, BLACKISH BRASS-COLOURED. The edges of the cafes of the wings of this insect, as well as the breast, are yellow; but the middle of the breast and head are of a blackish copper-colour; the lower part is entirely black; the feet are of the same colour; and the body is of an oblong figure.

CHRYSOMELA, BRASS-COLOURED, with two yellow lines on the cafes of the wings. The body of this insect is oblong; and there is a yellow line on the lateral edge of the breast, in the centre of each cafe of the wings, and on their external edges. The legs, and the internal part of the thighs, are yellow; and the feelers are knotted.

CHRYSOMELA, BLACK-BREASTED, with red cafes to the wings marked with a black spot. This species is of the middle size; the body is of a narrow oblong figure; the feelers, head, breast, and belly, are black; the wings are white; the feelers are remarkably small; and the cafes of the wings are of a bright red, furnished with eight streaks, composed of hollow points whose bases are black.

CHRYSOMELA, BLUEISH GREEN, with a red breast and thighs. This insect makes it's nest in the galls of the willow-tree. The head and cafes of the wings are of a shining blueish green, marked with hollow points; the breast, which is small, and marked with a reddish green, or rather a chefnut-colour, is thick and convex; and the feelers and bottoms of the feet are black.

CHRYSOMELA, YELLOW TESTACEOUS, with short wings. This animal lives on flowers, and is scarcely bigger than a louse. The body is smooth and oblong; the feelers are full of knots; and the cafes of the wings are furrowed, and shorter than the two joints of the belly.

CHRYSOMELA, OBLONG TESTACEOUS, with accumulated cafes to the wings. This very minute insect is of a chefnut-colour, has filiform feelers, and the cafes of the wings appear as if painted.

CHRYSOMELA, DUSKY, with a blackish head. This species subsists on the leaves of the willow-tree, and is somewhat less than a flea. The body is oblong; the feet are somewhat paler than the

body, which is of a deep chefnut-colour; and the head is black.

CHRYSOMELA, WITH DUSKY CASES TO THE WINGS, and a yellow margin. The head of this animal is brown; the breast and feet are yellow; the cafes of the wings are almost black; the feelers are alternately black and yellow; the wings are brown, with black veins; and the belly is yellow, and marked with a broad black line.

CHRYSOMELA, TESTACEOUS. This insect is found, in the beginning of spring, among rotten wood, and is placed by authors among the largest kinds. The body is of an oval figure, and a chefnut colour; the eyes are black; the feet and feelers are red; the under-parts of the feet are white; and the cafes of the wings are marked with hollow points.

CHRYSOMYTHRES. A name given by some naturalists to the goldfinch.

CHRYSOPHRYS. An appellation given by the ancient Greek and Latin authors to a fish called aurata by the moderns. It is a species of sparus.

CHRYSOPIS. A species of fly so called from the beautiful gold-colour of it's eyes. The body is green, and longish; the wings are of a silvery colour, extremely thin and transparent, with green ribs or nerves; and the antennæ are very slender and blackish. It flies very slowly, generally settles on elder-trees, and it's smell is pretty strong.

CHUB. This fish, which is very coarse, and full of bones, frequents the deep holes of rivers; and, during the summer season, commonly lies on the surface of the water beneath the shade of some tree or bush. It is very timid, darting to the bottom on the smallest alarm; but it soon recovers itself, and resumes it's situation. It feeds on worms, caterpillars, grasshoppers, beetles, and other coleopterous insects which happen to fall into the water; and, in cafes of necessity, it even has recourse to cray-fish.

The Chub derives it's name from it's head, not only in the English, but also in many other languages. It does not grow to any considerable size, seldom exceeding the weight of five pounds, though Salvianus mentions some which were eight or nine. The body is oblong, rather round, and nearly equal for a considerable part of it's length. The scales are large; the irides are silvery; the cheeks are of the same colour; the head and back are of a deep dusky green; the sides are silvery, though in summer they assume a yellow colour; the belly is white; the pectoral fins are of a pale yellow; the ventral and anal fins are red; and the tail is slightly forked, and of a brownish tinge, but shaded with blue at the extremity.

The best manner of fishing for the Chub is to prepare a very strong rod of a sufficient length, with a grasshopper affixed to the hook; and to retire as far as possible from the verge of the stream, that the fish may not be apprehensive of any danger; for, if the angler be concealed, the Chub seldom fails to take the bait: nevertheless, care must be taken to play it sufficiently, lest, from the powerful exertions of the fish, the tackle should give way. In March and April, the Chub may be caught with large red worms; in June and July, with flies, snails, and cherries; but in August and September, with pounded cheese mixed with a little saffron and butter. Some anglers make a paste of cheese and Venice turpentine as a bait for the Chub in winter, at which season this fish is supposed to be in it's highest perfection, the bones being

ing less troublesome, and the flesh more firm and better flavoured. The angler, however, in order to obtain success, must in cold weather keep his bait at the bottom, and in hot near the surface of the water.

CHUCHIA. An appellation given by Cardan, Oviedo, and some other authors, to the opossum.

CHURR-WORM. The name given by some naturalists to the gryllotalpa.

CICADA. A genus of insects of the order of hemiptera, peculiar to Italy and some other warm climates. It has large wings; and makes a noise like that of a cricket, from which circumstance it is by some called the balm-cricket.

This insect, when powdered and mixed with pepper, is recommended by some of the medical faculty as a specific for colics; and, when reduced to ashes, is administered in nephritic cases.

CICADA AQUATICA, or the **WATER GRASHOPPER.** A name very injudiciously applied by Rondeletius and others to an animal frequently found in stagnant waters. It is of a greyish colour, with six legs, and the appearance of rudiments of wings; and is remarkable for a sort of mask before it's face, which it lifts up at pleasure. It is a poor, defenceless creature, the prey of almost all other water insects, and even of those which are greatly inferior to itself in size. It seems to have no relation to the grasshopper, but is the hexapode or worm-state of one of the libellæ or dragon-flies. The hind-legs, which are considerably longer than the others, are used as oars, in the act of swimming, in the manner of those of the notonecta.

CICADA, GREEN-WINGED. This insect has a yellow head, and is as large as a fly, but very narrow in proportion to it's length. The external wings are of a fine deep green colour, and the internal ones of a blueish grey; the covering of the breast being also green, but paler than the wings. The head is yellow, marked with two large spots on the hinder part, and several small ones at the sides; and there are some transverse streaks on the forehead. The body is of a blueish grey; and the legs are yellow. It is commonly found on aquatic plants in autumn.

CICADA WITH YELLOW EXTERNAL WINGS. This species is about the size of a common fly; and is wholly of a beautiful yellow colour, except when the wings are closed, and then a longitudinal black line appears on each side of the back, so divided in the middle as to exhibit the form of two lines, the one running from the breast, and the other from the tail to the middle, where they are obliquely separated; the two superior parts of these lines unite near the breast; and on each side of the head and breast there is a black spot. The feelers are short; the forehead is a little furrowed transversely; and, when the wings are extended, the body seems to be yellow in the middle, and black on each side. This insect frequents pasture-grounds in the month of June.

CICADA OF NORTH AMERICA. These animals are annually seen in Pennsylvania, though in small numbers; but, after certain intervals of fourteen or fifteen years, they appear in such prodigious numbers, as to obtain the name of locusts. Several sorts of insects prey on them with unceasing devastation, so that their numbers soon decrease; and their duration being naturally short, they quickly disappear.

North America affords two distinct species of Cicadæ; the largest of which was first described in the Philosophical Transactions of 1764.

Linnaeus enumerates eight species of Cicadæ; to which he gives the names of the American laternaria, the Chinese laternaria, the ranatra, the flea-locust, the Cicada with a double-horned breast, the manna-bearing Cicada, the Cicada of the elm-tree, and the Cicada of the rose.

CICADULA. An appellation given by Ray to a small species of insect, called by Swammerdam locusta pulex, found in May and June on the stalks and leaves of various plants, involved in a spumous white matter commonly called the cuckow-spit. This spume is not, as generally imagined, exsuded from the plant, but from the mouth of the animal; and, if it be carefully wiped away without injuring the insect, more will immediately be seen issuing from it's mouth, till it increases to as large a quantity as was removed.

There are several varieties of this animal; and, while enveloped in the spume, they resemble lice, some being white, others yellow, and some green. The hind-legs are somewhat longer than those before; and, at the shoulders, there is an appearance of the rudiments of wings. They often change their skins while immersed in this froth; and, at this period of their existence, only creep along; but, whenever they quit the plants, they hop and fly, being then furnished with large wings which cover their whole bodies.

CICERELLUS. A name given by Boccone, and some other authors, to the ammodytes, or sand-eel, the tobianus of Schoneveldt.

CICINDELA. A genus of beetles, having filiform feelers, prominent dentated jaws, and roundish and somewhat angular breasts.

CICINDELA, GREEN. The upper surface of the body of this very beautiful insect is splendidly variegated with green and gold; the cases of the wings are smooth and glossy, of the same colour with the body, and marked with ten white spots, some of which are roundish, others are oblong, and one is shaped like a crescent. The breast is narrow, roundish, and of a deep green; the head is small, depressed, and finely tinged with gold; the eyes are black and prominent; and the mouth is of the same colour, except that the upper-lip is white. The upper-jaw, which is prominent, contains several strong teeth; but the lower has only one tooth, which is placed at it's extremity. There are two pair of feelers, one pair consisting only of two joints and the other of ten. The legs are very long and slender; and at the bases of the thighs there is a kind of hard, oval substance. This insect, which is common in pasture-grounds during the vernal season, both runs and flies very swiftly.

CICINDELA WITH BLUEISH-GREEN CASES TO THE WINGS. This animal has a yellow belly, and it's body is nearly of an oval shape. The head, breast, feelers, and legs, are entirely black; the belly is of a yellowish tawny colour; the cases of the wings are of a blue green, variegated with hollow specks; and the feelers, which are short, consist of ten joints. This insect frequents woody places.

CICINDELA, BLACK. This species is entirely black, except that the cases of the wings are marked with six white spots and a white streak; and the thighs and legs are long, slender, and somewhat hairy. It is found in woods.

CICINDELA, BLACK, WITH A RED BREAST.
The

The cases of the wings of this insect are of a blackish blue; the feelers are black; the head and feet are of the same colour; the breast is of a reddish brown; and the belly, which is oblong and narrow, is yellow behind.

CICINDELA WITH BLUEISH CASES TO THE WINGS, and a fallow-coloured body. This insect seems attached to shady places, and is nearly of the same shape with the former. The head, breast, feet, and feelers, are black; the belly, near the feet, is of a fallow hue; the cases of the wings are of a shining blue, marked with hollow points; and the feelers consist of six joints.

CICINDELA WITH A GREEN BREAST. The cases of the wings of this insect are of an iron-grey colour in front, and of a blueish black behind; the feelers are black; and the body and breast are of a fine blueish green.

The glow-worm is by some affirmed to be the female of the Cicindela; but with respect to this assertion naturalists are much divided.

CICLA. A name given by Artedi, and other late writers, to a species of fish called chichle by Aristotle and Ælian, and turdus minor by the generality of the moderns.

CICONIA. The classical name for the stork.

CIERGE. The French name of a sea-shell of the order of voluta. It is of the colour of common yellow wax, without any variegations on the surface; but, when the rough coat is taken off, it exhibits the zones and colours of the onyx. Among the virtuosi, it is generally known by the name of the onyx-shell.

CIGALE. A French term for the cicada, particularly the large species called acheta by the ancients. See **HARVEST-FLY**.

CIGALON. An appellation given by French naturalists to a smaller species of the cicada, as that of cigale is affixed to the larger. It appears that the ancients were unacquainted with two species of cicadæ, a great one and a smaller; the last of which they called tettigonia, and the first acheta. It has been generally imagined that the Cigalon of the moderns corresponded with the tettigonia; but Reaumur observes, that there are in reality three kinds of them, a large, a middling, and a small one; that the large was the acheta of the ancients; that the middle one was their tettigonia; and that the Cigalon, which is about the size of the hornet, was wholly unknown to them.

CIGNE. A name given by the French virtuosi to a species of voluta. When it appears in it's natural coat, it has a rough surface, and is of a yellow colour, much like that of common wax; whence it is called cierge, or the wax-shell. When the external covering is removed, it appears of a very beautiful white, and then obtains the name of the Cigne, or swan-shell. When highly polished, so as to discover the internal structure, it appears zoned in the manner of the onyx; and is then called the onyx.

CIMEX. A genus of insects, the characters of which are these: the head is small; the back, towards the shoulders, is broad, and covered with a crustaceous substance; the shoulders are of an angular shape; the wings are partly crustaceous and partly membranaceous, and so formed as to exhibit the figure of a cross where they meet at the middle of the back; and the proboscis is long, bent under the belly, and always lies straight, and not in a spiral form.

Ray divides the Cimices into two kinds; those

of a shorter, and those of a longer and narrower shape. Of the first he describes eight species, and of the latter five.

CIMEX, BRASSY BLUE. This insect is of the size of the large blue fly, but more flat. The upper surface of the body is of a beautiful blue colour, with a metalline cast; on the breast there is a longitudinal line, which at the lower extremity is terminated by one running across; the extremity of the shield is either red or white; and on each side there is a spot of the same colour. The legs and feelers are black; and the body, underneath, is of a blueish black. The spots on the male are white, and those on the female red.

CIMEX, HENBANE. This insect, described by Linnæus, is a very beautiful one. The body is very narrow; the head is black, except on the middle, where it is of a bright red; the breast is black at it's forward extremity, but red in every other part, except two angular spots behind. The external wings are red, but marked with a black spot in the middle of each; so that, when closed, two of these spots appear on the back. The shield is black, with a red extremity; and the body under it is black; but in other parts it is red, except near the vent. The wings are brown and streaked; the feelers and legs are black; and the trunk and snout consist of four joints.

CIMICIFORMIS MUSCA. A name given by Ray to a species of beautiful insects, partly of the fly, and partly of the cimex kind. They are found under hedges, and in dry places. Of these creatures the above ingenious naturalist enumerates eleven species.

CINÆDUS. A fish common in the Archipelago, near the rocks and shores; supposed to be of the same species with the alphestes, and of the turdus kind, except in having it's back-fin prickly the whole length. It is entirely of a yellowish hue, blended and variegated with an admixture of purple; it's scales are rounded and indented; and it's teeth are very strong and firm, and disposed in a double row in each jaw.

CINCLUS. A species of the tringa; a name sometimes given to the bird called in English the greater reed-sparrow; and, by the generality of authors, junco.

Cinclus is also the name of a species of sturnus, or starling.

CINNAMOLOGUS. An appellation given by the ancients to a bird which they imagined built it's nest in the cinnamon-tree, or on rocks and precipices with the broken branches of that valued tree. The idle traditions respecting this bird render it impossible to determine it's real kind; some affirming it to be the phoenix, and others a particular species of fowl.

CIRCERELLUS. A name by which some authors express the ammodytes, or sand-eel.

CIRCUS. An appellation given by Bellonius, and some others, to the melvus æruginosus, or moor-buzzard.

CIRL. A bird described by Aldrovandus; and called zivolo by the Italians, from the syllable zi, zi, which it frequently repeats. It is of the size of a sparrow; and has a thick bill, with a knob on the upper chap. The breast and belly are yellowish, sprinkled with brown spots; and the whole upper-part is of a brownish brick-colour. The male is more yellow about the head and neck than the female. The CirL sits chiefly on the ground, and feeds on the seeds of plants.

CIRL, FOOLISH. This bird, so called by Aldrovandus, is of the same magnitude, and nearly of the same figure, with the former. The upper part of the head, and the whole back, are of the colour of rusty iron; the prime-feathers of the wings and tail are blackish, but their edges are of a rust-colour; and on the wings there are a few black spots.

CIRRIS. A small species of heron; called by some authors the *ardea hæmatopus*, or the red-legged heron, from its beautiful red legs.

CITELLUS. A small animal of the mouse kind, which lives in caves and holes of the earth. Its body, like that of the common weasel, is long and thin; its tail is very short; and its colour is a pale silvery grey. It resembles the mouse in the want of external ears; but it has apertures which supply their places, in the manner of birds. These animals live in communities, great numbers of them being usually found together in the same cave, furnished with a large stock of nuts, chesnuts, and other fruits. Their flesh is well-flavoured; and their skins are much valued in cold climates. They are natives not only of the frigid regions, but likewise of Bohemia, Austria, and Hungary.

CITHARUS. A fish frequently caught in the German and Mediterranean seas. It is flat, and of the turbot kind, but entirely covered with large scales.

CITRIL. An appellation given by naturalists to the *citrinella*, or *verzellino*; a bird common in Italy, where it is generally caged on account of the beauty of its plumage and the sweetness of its notes. Its shape bears a strong resemblance to that of the common linnet. The head and back are green; the rump is a greenish yellow; and the neck, with a small part of the head behind, are grey.

CITULA. The name given by Paulus Jovius to the fish called *faber* by the generality of authors, and *doree* in English. Pliny calls it *zeus*; and hence Artedi has made *zeus* the generical name which comprehends this, and several other species, under the same arrangement. The *faber* is called the *zeus* with the prickly belly and the tail rounded at the extremity; and this seems to be the true specific name of the *Citula*.

CIVET. This animal, called the Civet-cat by various authors, constitutes a species of the *viverra*, or weasel, in the Linnæan system of zoology; and, by Buffon, is made to consist of two species, one of which he calls the Civet, and the other the Zibet. The latter differs principally from the former in having a longer and more slender body, a smaller nose, longer and broader ears, in being destitute of the mane or long hair running down the back, and in having the tail longer, and more annulated with different colours from one end to the other. Such are the variations which have induced this great naturalist to suppose that these animals are of different species; but, in conformity to the usual practice of zoologists, we shall consider them merely as two varieties of the same animal, and only altered in figure by climate, food, or education.

The Civet strongly resembles animals of the weasel kind in the length and thinness of its body, the shortness of its legs, the odorous matter which exudes from its posterior glands, the softness of its fur, the number of its claws, and their incapacity of being sheathed; while it differs from them in being considerably larger, in having its nose lengthened so as to resemble that of the fox, in its tail being long and tapering to a point, and in its ears being straight like those of the cat.

The colour of the Civet varies considerably; however, it is commonly ash spotted with black; but, in the female, it is more white, and the spots much larger. The colour on the belly, and under the throat, is black; and the other parts of the body are sometimes black streaked with grey: it has frequently the variegated hues of the tabby-cat; and, in short, it is impossible to give a precise idea of its various external shades.

The opening of the pouch, or bag, which is the receptacle of the Civet, differs from that of the rest of the weasel kind, in not opening into, but under the anus. Besides this aperture, which is pretty large, there is another still lower down; but for what purpose it is designed, naturalists are not agreed. The pouch itself is about two inches and a half broad, and two long; its opening makes a chink, from the top downwards, about two inches and a half long; and it is covered on the edges, and internally, with short hair. When the two sides are drawn asunder, the inward cavity may be seen, which is large enough to contain a pullet's egg; and round it on every side there are small glands, which open, and furnish that strong perfume so well known and formerly so much admired.

Those who are employed in rearing these animals for the sake of their perfume, usually collect it twice or thrice in the week, and sometimes oftener. The creature is on such occasions confined in a long box, in which it has not room to turn itself round: the person opens the box behind, drags the animal backward by the tail, keeps it in this position by means of a bar in front, and with a wooden spoon scrapes the Civet from the pouch with the greatest care; after which he quits his hold of the tail, and shuts the box. The perfume, thus procured, is put into a vessel, which is kept very closely shut; and, when a sufficient quantity is obtained, it is disposed of to considerable advantage.

The Civet, though a native of the warmest climates, thrives very well in temperate, and even in cold ones, provided it be carefully defended from the injuries of the air; and hence it is bred not only in Turkey, India, and Africa, but also in Holland, where the Dutch reap considerable advantage from its perfume. The Civet of Amsterdam is reckoned the purest; it being frequently adulterated in other countries with various gummy substances, which at once increase its weight and diminish its value. The quantity which a single animal affords generally depends on its health and nourishment. Raw flesh chopped small, eggs, rice, birds, young fowls, and particularly fish, are the kinds of food most acceptable to this creature; and these should be varied, in order to suit and entice its appetite, and continue its health. Though it drinks very sparingly, it waters frequently; and, on such occasions, it is impossible to distinguish the male from the female.

The perfume of the Civet is so very strong, that it communicates itself to every part of the animal's body: the fur is impregnated with it; and the skin penetrated to such a degree, that it retains the scent a considerable time after it is stripped off; and, were any person to be shut up with one of these creatures in a close room, so copiously is the odour diffused, that he would very soon be unable to support it. When the animal is irritated, the scent is much more violent than ordinary; and, if it be so tormented as to produce a perspiration, this is also a strong perfume, and serves to adulterate or increase what is otherwise obtained.

In general, Civet is sold in Holland at about fifty shillings sterling an ounce; though, like all other commodities, it's value alters according to the demand. It should be chosen fresh, of a good consistence, a whitish colour, and a strong, disagreeable smell. A very considerable traffic is still carried on in this perfume from Bufforah, Calicut, and other places of India where the Civet is bred; from the Levant also, from Guinea, and especially from Brazil in South America; though Buffon is of opinion that this animal is a native of the old continent only, and not to be found in a state of nature in the new. The best Civet, however, as already observed, is furnished by the Dutch; but the demand for it seems greatly on the decline.

Civet is certainly a much more grateful perfume than musk, to which it bears some resemblance; and formerly it was prescribed for the same medicinal purposes; but, at present, it is quite discontinued in pharmacy, and even proscribed from the toilet by persons of elegance and taste.

The Civet, in it's natural state, is said to be a wild, fierce animal; and, though sometimes tamed, it is never perfectly familiar. It is furnished with strong cutting teeth; but it's claws are feeble and inflexible. It is a light, active creature; and, like the rest of it's kind, preys on birds, and other small animals over which it's strength gives it ascendancy. It frequently creeps into farm-yards and offices in search of poultry; it's eyes shine in the dark; and it probably enjoys more perfect vision by night than by day.

When these creatures can no longer procure animal food, they subsist on roots and fruits. They breed very rapidly in their native climates, where the heat seems to facilitate their propagation: but, in our temperate latitudes, though they furnish their perfume in great quantities, they seldom multiply; a convincing proof that it has no analogy with their appetite for generation.

CLADIUS. A name given by the ancients to the stag, or deer, when four years old, being then supposed to be arrived at full maturity. The Greeks had distinct appellations for every year's growth of this animal: in the first year, they called it nebrus; in the second, pattalea; in the third, dicrotus; and, in the fourth, Cladius, or ceraftes.

CLAKIS. A provincial appellation for the barnacle, a small species of wild-goose.

CLAMS. The North American name of a species of shell, of which the wampum, or Indian money, is made.

CLARIAS. A fish of the silurus kind, commonly caught in the Nile, and eaten by the poorer sort of people, but of an insipid taste. The tail is broad and forked, furnished with two horny appendages of a round figure and a hand's breadth in length.

CLARK-GOOSE. A species of wild-goose found in Zetland.

CLIO. A genus of sea-worms belonging to the order of molusca; the body of which is oblong, formed for swimming, and furnished with two opposite alæ of a membranaceous structure.

CLOT-BIRD. A provincial name for the oenanthe.

CLUPEA. A fish of the order of malacopterygii, or soft-finned kind, in the Artedian system; and of abdominales in the Linnæan, under which are classed eleven different species. The branchiostegic membrane on each side contains eight lines; the belly, which is very acute from the singular situ-

ation of the scales, appears as if serrated; and the back-fin is placed somewhat nearer to the snout than the tail. Artedi enumerates four species of this genus; namely, the common herring, the sprat, the shad, and the anchovy.

COAITI. A species of monkey, distinguished from others of that tribe by being destitute of a thumb, and consequently having only four fingers on each of the two fore-paws. The tail, however, supplies this defect; and with it the creature flings itself from tree to tree with surprizing celerity. It has five toes on the feet, flat nails, a slender body, and a long tail. This animal, which is about eighteen inches in length, inhabits the vicinity of Carthagena, Brazil, and Peru.

These monkeys are extremely active, and seem to enliven the forests of America. In order to pass from one tree to another when the branches are too far distant from each other for a leap, they form a kind of chain, by hanging down linked to each other by their tails, and swinging in that manner till the lowest catches hold of a bough of the next tree, and draws up the rest. Ulloa informs us, that they sometimes pass rivers in the same manner. These animals have been transported into Europe; but such is the delicacy of their frame, that they are unable to endure a variable climate.

COAL-FISH. This fish is common on the British coasts, particularly in the north: they swarm round the Orkneys; and their fry is the principal subsistence of a great number of the poorer sort of people.

The young of this fish make their first appearance on the Yorkshire coast, in vast shoals, about the beginning of July, at which time they are nearly an inch and a half long. In August, they are from three to five inches in length, and are then esteemed very delicate food; but, when about a year old, they grow so coarse as to be very little regarded. Fish of that age are from twelve to fifteen inches long; and begin to assume a black colour near their gills, and on their backs, which increases in proportion to their age.

Though these fish are but little esteemed when fresh, they are salted and dried for sale; and sometimes such quantities of them visit particular parts, that it is impossible to dip a pail in the sea without catching some.

The Coal-fish, which is of a pretty elegant shape, generally grows to the length of two feet and a half, and weighs near thirty pounds. The head is small; the under-jaw is somewhat longer than the upper; and the irides are silvery, and marked on one side with a black spot. There are three dorsal fins, the first consisting of fourteen rays, the second of twenty, and the third of twenty-two. The pectoral fins consist of eighteen rays, and the ventral of six; the first anal fin of twenty-two, and the second of nineteen. The tail is broad and forked. The colour of these fish has been observed by naturalists to vary; in some, the back, nose, dorsal fins, and tail, are of a deep black; the gill-covers are silver and black; the ventral and anal fins are white; and the belly is of the same colour. Others are of a dusky hue, and some brown; but in all the lateral line is straight and white, and the lower-parts of the ventral and anal fins are of the same colour.

COAL-MOUSE, or BLACK TIT-MOUSE. The head of this bird is black, with a white spot on the hinder part; the back is of a greenish ash-colour; the rump is a deep green; and the exterior edges

edges of the prime wing-feathers are also green. The weight of this bird is about a quarter of an ounce; its length, from the tip of the bill to the extremity of the tail, is five inches; and the extension of its wings is seven. It is distinguished from all other tit-mice by its inferior size.

COATI. A Brazilian name for the racoon. See **RACCOON**.

COATIMONDI. A Brazilian animal, of which there are several varieties; though their natural history is so imperfectly known, that they have generally been blended under one general description.

The Coatimondi is remarkable for the extreme length of its snout, which in some measure resembles that of a hog, but is elongated to a surprising degree. It bears some affinity to the racoon, except that the neck and body are longer, that the fur is shorter, and that the eyes are smaller. But the principal distinction between this and all other animals, consists in its snout, which is moveable in every division, and reverts at the extremity. Like the racoon, it rests on its hinder legs with great facility, and in this position carries its food to its mouth with both its paws.

This animal has been known frequently to prey on its own tail, which is rather longer than its body: but this strange appetite is not peculiar to the Coatimondi alone; the maucauco, and some of the monkey tribe, do the same, and seem to feel no pain in wounding a part of their body so remote from the centre of circulation.

The Coatimondi is about three feet long from the tip of the nose to the extremity of the tail; the fore-paws are divided into five toes, the nails of which are long, black, crooked, and hollow like those of the beaver; the under-parts of the fore-paws are covered with a soft skin; and at the ends of the heels there are several callosities, half an inch in length, and one-tenth of an inch in breadth, which cling together like a marigold when it shuts up its flower during the night. The hair is short and unequal, and of a black colour on the back and some parts of the head, as well as on the paws and snout; but on the rest of the body it contains a mixture of black and red, and under the neck and belly has somewhat of a golden tinge. The tail is surrounded with annular stripes of black and red; the eyes are small; and the ears are round, like those of a rat, and covered with very short hair externally, but internally with long whitish hair. In each jaw there are six fore-teeth; the canine teeth are very large, of a greyish colour, and somewhat transparent; the mouth is large, resembling that of a hog; and the under-jaw is much shorter than the upper.

This creature seems to be sportive and amusing in a tame state; but, if left at liberty, will not only destroy poultry, but all other animals over which its strength gives it the superiority. It is playful with its keeper, but is nevertheless obstinately bent against receiving any instruction; and neither threats nor caresses can induce it to practise any arts to which it is not naturally inclined. When it sleeps, it rolls itself up in a lump, and in that position often continues for fourteen or fifteen hours at a time.

COBITIS. A small fresh-water fish, commonly called in England the loach. It greatly resembles the gudgeon both in shape and colour, but is much smaller, being never more than three inches long. Its body is soft and slippery; its tail is flat and broad; and its scales are extremely minute. Its colour is brown, spotted with black; and from its

upper-jaw proceed three pair of beards. This fish, which is caught in the rivers of many different countries, is esteemed very delicate food, especially when young.

Artedi enumerates three species of the Cobitis; and Linnæus makes it a genus of abdominales, including five species.

COBITIS ACULEATA, or **OXYRYNCHUS**. This species is armed with two prickles on the coverings of each of its gills, by means of which it moves very nimbly among stones at the bottoms of rivers.

COBIUS. The Greek appellation for the gobius marinus, or sea-gudgeon, distinguished by Artedi under the name of the blackish variegated gobius with fourteen rays on the second fin of the back.

COBIUS LEUCOTERUS. A Greek name for the fish called gobius albus by modern writers. It seems to be a genuine species of the gobius; and is distinguished by Artedi under the name of the gobius with a blue ventral fin, and the rays of the anterior back-fin rising above the membrane; which seems to be a sufficient discrimination from all the other species.

COBRA DE CIPO. An appellation given by the Portuguese to an American serpent, more usually known by its Brazilian name boitjapo.

COBRA DE CORAL. An American serpent, called by the natives ibibiboca. It is about two feet long, and beautifully variegated with a fine red colour.

COBRA DE LAS CABECAS. A Portuguese name for an American species of serpent of the amphibœna kind, the bite of which is very fatal. It lives under ground, and feeds on ants.

COBRAS DE CAPELLO. A Portuguese name for a peculiar species of serpent called by authors *serpens Indicus coronatus diademate*; in English, the spectacle-snake, so named from the strange resemblance of the back of its head and neck to a pair of spectacles. It grows somewhat larger than the common viper; the snout is long; the head is flat, or depressed; and the bite is very fatal. It is supposed by many that there is a stone lodged in the back-part of the head, which is a specific for its bite; but the stones generally known under the appellation of lapides Cobræ de Capello are all artificial compositions.

COBRE DE VERD. A Brazilian serpent, so called by the Portuguese; but, by the natives, boiobi.

COCCINELLA. A genus of insects of the coleoptera kind; the distinguishing characteristics of which are, that the antennæ are clavated and truncated; and that the thorax, with the exterior wings, which are marginated, form an hemispherical figure. There are several species of this genus, distinguished by the colour and spots of their wings; among which are included all the lady-cows, commonly so called.

COCCOTHAUSTES. A bird with a very short body and large beak; whence it is called, in English, the gros-beak, or hawfinch. It is considerably larger than the chaffinch; its head is very large in proportion to its body; and its large beak, which tapers from a very thick base to an acute point, resembles a funnel. This bird, which is common in Germany, lives in the woods and mountains during the summer; but in winter it retires to the champain country, and sometimes visits England during that season. It feeds on the kernels contained in the stones of fruits, which it breaks

with

with great dexterity; and also on the seeds of many different plants.

COCCOTHRAUSTES CRISTATA. An appellation generally given by naturalists to the Virginian nightingale; that bird being truly a *Coccothraustes*, though it has received the name of nightingale on account of the sweetness of its modulations.

COCCUS. A very comprehensive genus of the hemiptera class of insects; the characters of which are, that the trunk arises from the breast; that the body is setose behind; and that the two wings are placed erect, and only to be found in the males.

This genus comprehends all the progal insects of Reaumur.

COCCUS ILEX. This insect, which is known among druggists by the name of kermes, is a native of the berry-bearing ilex, a species of oak. It appears to be a membranaceous bladder of the size of a pea, smooth and shining, of a brownish red colour, covered with very fine down or cinereous powder, and swelling with reddish eggs, which being fricated, pour out a crimson fluid. It is found in the warmer climates during the months of May and June. In March, a species of insects, less than the seeds of millet, is first perceptible, of an oblong oval form, only a little narrowed towards the tail. The upper part is convex, red, and marked with exceedingly minute golden specks, and a few transverse wrinkles. It has six feet and two moveable feelers, almost of an equal length with the body; it has black eyes; and a double tail, of the same length with the body. It adheres to the trunk, branches, and leaves of the tree; and becomes torpid and immovable, swelling and increasing in magnitude very sensibly. If viewed with a microscope at this period of its existence, it appears of a crimson colour, shining with golden specks, and lying in a sort of whitish down, which forms a kind of nest. The back, which rises very high, is of a round figure; and in the fore-part of the body three protuberances are perceived, of which that in the middle is thick and roundish, but those on the sides are more slender, and incurvated near the centre.

In the month of April the *Coccus* becomes as large as a common pea; its membrane or skin is firmer; and the down, which at first lay in bands on the skin, covers the whole surface like a sort of dust; and then the animal appears no longer, but only a bladder full of pale and watery blood.

About the middle of May, the interior part of the bladder, under the belly of the animalcule, is furnished with oval grains, each about half the size of a poppy-seed, and of a pale reddish colour speckled with gold: these consist of a thin, white, transparent skin, full of a pale reddish fluid. On each bladder there are about two thousand of these minute excrescences, which in the following spring affix themselves to the trunks and branches of the trees where they afterwards deposit their eggs, and thus continue the round of nature.

When the *Coccus* has attained its proper size, the skin of the belly is pulled up towards the back, leaving a vacant space between the belly and the down, so as to exhibit the appearance of hog-lice half rolled up; and in this form the animal lays its eggs, dies, and is dried up.

The *Coccus*, or kermes, is of two sexes, and hitherto the females only have been described: but the males are very different, being a sort of small

flies like gnats, with six feet, of which the four foremost are short, and the other two long, divided into four joints, and armed with three crooked nails. On the head appear two feelers a line and a half long, which are flexible, streaked, and articulated. The tail at the back part of the body is half a line long, and forked. The whole body is covered with two transparent wings; and the animal leaps about after the manner of a flea.

The harvest of the *Cocci* is more plentiful or otherwise in proportion to the severity of the winter, and their colour is also brighter and better in proportion to their vicinity to the sea. This drug, used by dyers, is in much less repute since the importation of cochineal, which more effectually answers every wished-for purpose.

COCCUS POLONICUS. This insect may with propriety be called the cochineal of the northern part of the world; for, as the cochineal loves only hot climates, this creature delights solely in cold ones. It is collected for the use of dyers; but it is greatly inferior to the genuine cochineal; and the crops of it are not only much smaller, but gathered with more difficulty. Being principally found in Poland, it is thence called the *Coccus Polonicus*, or the scarlet grain of Poland. However, it is to be met with in many other cold countries; and may very possibly be produced in some of the more temperate ones, where it is not known, being concealed by nature from the eyes of common observers.

This Polish *Coccus* is found affixed to the roots of a small plant, and usually to one kind of vegetable, which from this circumstance has received the name of *polygonum cocciferum*. Authors inform us, that the same production is also found united to the roots of the mouse-ear, rupture-wort, pimpernel, and pellitory of the wall; and that it is seldom discovered except in very dry situations.

Breynius published a very curious account of this insect production in 1731; which incontestably proves it to be an animal, and affords abundant reasons for referring it to the progal insect class.

There are several other species of European *Cocci*, or kermes, mentioned by naturalists; but their accounts are so replete with confusion, contradiction, and obscurity, that we are induced to think the animal varies only from the particular plant on which it is found, and not from any essential difference in the species.

COCCYX. The Greek appellation of the fish called cuculus and lyra by the Latinists. It is a species of the trigla, and is distinguished by Artedi under the name of the trigla entirely of a red colour, with a bifid snout, and striated coverings to the gills.

COCHINEAL. An animal of the progal kind, of very great value on account of its use in dyeing. This production has been variously described by different authors: some have supposed it to be a vegetable excrescence from the tree on which it is found; while others have described it as a louse, some as a bug, and others as a beetle. As the Cochineal appears on importation, it is of an irregular shape, convex on one side, and a little concave on the other; but both are marked with transverse streaks or wrinkles. It is generally of a scarlet colour internally, and of a blackish red externally; and sometimes of a white, reddish, or ash-colour, which is accounted the best; and is the produce of Mexico.

The Cochineal insect is of an oval form, of the size

size of a small pea, and furnished with six feet, and a snout or trunk. It brings forth it's young alive, and is nourished by sucking the juice of the plant on which it resides. It's body consists of several annulations; and, when once fixed on the plant, it continues immoveable, being subject to no farther change. Some pretend that there are two sorts of these insects: the one domestic, which is esteemed the best; and the other wild, which is of a vivid colour. However, they appear to be the same: with this difference only, that the wild insect feeds on uncultivated trees, without any assistance from man; whereas the domestic one is carefully removed to cultivated trees at stated intervals, where it imbibes a purer juice.

Those persons who tend these insects, place them on the prickly-pear plant in a certain order, and are very assiduous in defending them from other insects; and if any foreigners happen to mix with them, they are carefully separated by means of foxes tails. Towards the close of the year, when the rains and cold weather approach, which generally prove fatal to their existence, the feeders take off the branches or leaves that are covered with the Cochineal, which have not attained their utmost degree of perfection, and keep them under shelter till the end of winter. These leaves, which are very thick and juicy, supply the insects with sufficient nourishment while they are housed. When milder weather returns, and these animals are about to exclude their young, the natives form nests for them, of a size and construction adapted to their natures and necessities; and place twelve of them in every nest. These nests they affix to the thorns of the prickly-pear plant; and, in the space of three or four days, the insects bring forth their young, which leave the nests in a very short time afterwards, and creep on the branches of the plant till they find proper places to repose and receive their nourishment, and till the females are fecundated by the males, which, as in the cocci, differ very widely from the females, being winged insects; whereas the others only creep, or are at most stationary. When they are impregnated, they produce a new offspring; so that the propagator enjoys a triple harvest every year.

When the native Americans have collected the Cochineal, they deposit them in holes in the ground, where they destroy them by means of boiling water, and afterwards either dry them in the sun, in ovens, or on hot plates. From these various methods of curing them the different colours observable in those imported are chiefly produced. These insects, while alive, seem to be sprinkled over with a white powder, which disappears as soon as the boiling water is poured on them. Those which are dried by preternatural heat are considerably blacker than the rest; but it should be understood that, whatever colours they possess, they are all females, the males, as already observed, being winged insects, and of no value.

Cochineal is used in medicine as well as dyeing, and is said to possess nearly the same virtues as the coccus or kermes; but is seldom administered alone, and is probably used rather for the sake of it's colour than it's medical effects. When infused or boiled in water, Cochineal yields a crimson tincture, inclining to a purple: fixed alkali renders the crimson deeper, but lessens it's lustre; while volatile alkali heightens the colour, without diminishing it's lustre. The best method of applying volatile alkali to this purpose in dyeing, is to dip the cloth, when dyed with Cochineal, in a solution of sal am-

moniac, and then to throw some pot-ash into the solution, by which the volatile alkali of the sal ammoniac is disengaged.

Hellot observes, that if Cochineal, after the usual pulverization, be mixed with one-fourth part of it's weight of pure dry crystals of tartar, and the mixture be levigated into an impalpable powder, the saving of the Cochineal, both for the crimson and scarlet dye, will be about one part in four, without the smallest injury to the colour.

COCHLEA. A very large family of sea-shells, divided by authors into three distinct genera, from the figure of their mouths, some of which are circular, others semicircular, and some oval. These are expressed by the generical names *Cochleæ lunares*, *Cochleæ semilunares*, and *Cochleæ ore depressæ*.

The characters of the *Cochleæ ore abscissæ* are the following: it has an univalve shell of a broad figure, with a conoid base, and an elevated summit, or sometimes a plane and depressed one. It is umbilicated, and of a pearly colour within; and it's mouth is of an oval figure, sometimes furnished with teeth, and at others destitute of any. The conic figure of these shells readily distinguishes them from all others.

The apex of several species of this genus is elevated to a considerable height, and forms various spiral turns, which are properly called *fabots* by the French, and *trochi* by the authors of other nations. In others, which bear a greater resemblance to the shape of common snails, the apex is less elevated; and, finally, in some of them, the apex is quite depressed. These distinctions sufficiently prove, that in general the elevation of the apex of shells is no genuine character of a genus; and, among the *trochi*, there is one single species which is umbilicated, while all the rest are otherwise.

From the figures of these shells, it will evidently appear, that the name *Trochi*, according to the common derivation of the word, but imperfectly expresses the several kinds, which are of very various formations. They are much better represented by the term *Cochleæ ore depressæ*, which conveys an idea of an absolute distinction that takes place in all of them, but in no other order of shells whatever.

COCK. The name of the males of gallinaceous birds; the distinguishing characters of which are, that the feet have each four toes; that the front of the head is adorned with a comb; and that the wattles are double, naked, and flat.

Of all other birds, the Cock seems to have been first reclaimed from the forest, and taken under the protection of man, in order to supply the accidental failure of the luxuries or necessities of life. Having thus been longest subject to human cultivation, he exhibits an amazing number of varieties, scarcely two birds of this species being found to resemble each other exactly in form and plumage. The tail, which is so great an ornament to the generality of these birds, is entirely wanting in others. The toes, in animals of the poultry kind, are usually four; but in one species of the Cock, which abounds in the environs of Dorking in Surry, they amount to five. The feathers, which in most of those animals we are acquainted with lie so smooth and in such beautiful order, are in a peculiar breed all inverted, and stand contrary to their natural direction; and there is a species imported from Japan, which, instead of feathers, seems to be entirely covered with hair. The above, with many other di-

verities, are to be found in this animal; all of which appear to be so many marks of this early prisoner's long and uninterrupted captivity.

At what period the Cock was first domesticated in Europe, is a question not properly ascertained; but it is generally supposed that he was introduced into the western part of the world from Persia. Aristophanes calls the Cock the Persian bird; and informs us that this fowl enjoyed that kingdom before some of it's earliest monarchs. The Cock was so early known in the most savage parts of Europe, that, under the Druidical dispensation, he was prohibited to be eaten among the ancient Britons. Indeed, the domestic fowl seems to have banished the idea of the wild one. Persia itself, from which we first received it, seems no longer to know it in it's natural form; and, if it were not sometimes found wild in the woods of India, as well as in those of the islands in the Indian ocean, it might perhaps be doubted in what form it first existed in a state of nature. But those doubts can no longer prevail, when we consider that the Cock is actually seen, in his ancient state of independence, in many islands of the Indian ocean, as well as in the forests on the coast of Malabar. In his wild state his comb and wattles are yellow and purple, and his plumage is black and yellow. There is another remarkable peculiarity in those of the Indian woods; namely, that their bones, when boiled, in Europe, are white; but, in India, as black as ebony: but whether this tincture proceeds from their food, (as the bones of animals, from their feeding on madder, are generally tinged with red) or from some other cause, it is not easy to determine.

When the Cock was first propagated in Europe, it is certain that there were distinctions which now no longer exist. The ancients esteemed those fowls whose plumage was reddish as invaluable, and considered the white ones as utterly unfit for domestic purposes; these they regarded as liable to become the prey of rapacious birds; and Aristotle thinks them less prolific than the former: indeed, this naturalist's division of those birds seems to be taken from their culinary uses; the one sort he calls generous and noble, being remarkable for fecundity; and the other sort ignoble and useless, on account of their sterility. These distinctions, however, are very different from our modern notions of the generosity of this animal; that which we call the Game-Cock being much less fruitful than the Dunghill-Cock, whom we regard with contempt on account of his comparative pusillanimity. It appears that the Athenians, as well as Europeans, had their Cock-matches; but it is probable that they did not make use of the same kinds on such occasions.

No animal possesses more courage than the Cock when opposed to any of his own species; and wherever refinement and polished manners have not been universally introduced, Cock-fighting seems to have constituted a principal diversion. In India, China, the Philippine Isles, and over all the oriental regions, it constitutes the pastime and amusement even of kings and princes. Fortunately for national reputation, this barbarous diversion is in England rapidly verging to decay; and, in a short time, it will probably become the sport of none but the lowest classes. It is a prevailing opinion, that the breed of this country is more bold and valiant than any to be found elsewhere; but the truth is, that the Cocks of China are equal if not superior in valour to the English ones, as well

as stronger and larger. It is somewhat surprizing that those men who venture hundreds, and sometimes thousands, on the prowess of a single fowl, have not taken every method of improving the breed; and particularly that of crossing the strain, as it is called, by a foreign mixture. But as Cock-fighting is a mean, savage, and ignoble amusement, we would not wish to promote it by any instructions; since he who teaches the art of cruelty, can hardly be considered in any other light than as accessory to the fact.

The Cock's extraordinary courage is supposed to proceed from his being the most salacious of all other birds, as well as the only animal whose spirits are neither exhausted nor abated by sensual gratification. However, he soon becomes old, his radical moisture is consumed, and in three or four years he becomes absolutely unfit for the purposes of impregnation. 'Hens also,' to use the words of Willughby, 'as they, for the greatest part of the year, daily lay eggs, cannot suffice for so many births; but for the most part, after three years, become effete and barren; for, when they have exhausted all their seed-eggs, of which they had but a certain quantity from the beginning, they must necessarily cease to lay, there being no new ones generated within.'

Hens seldom clutch a brood of chickens above once in a season, though instances have been known when they have produced two. A domestic hen will lay upwards of two hundred eggs in a year, when properly supplied with food and water; and she will continue to lay whether impregnated by the male or not: but eggs of this kind, though equally proper for food and all other domestic purposes, can never be brought to produce a living animal.

From a contemplation of the egg of the common hen, in which the yolk and the white are readily distinguished, it will be easy to judge of the eggs of all other birds: but there is one kind of white which surrounds the yolk, and another exterior one; there are also ligaments which support the yolk, near the centre of the egg; and two membranes, the one surrounding the yolk, and the other the white; and there is, moreover, a third and fourth, which encompass these interior ones; and a shell defending the whole; which last serves to preserve the chicken from any accident till it is formed, and ready to leave it's prison. The changes produced in this germ from time to time cannot possibly be discovered on account of the surrounding fluids. The white, however, is supposed to answer the purpose of milk, in feeding the young; and the yolk to be that part from which the growth proceeds.

The hen, if left to herself, forms but a very indifferent nest; a hole scratched in the ground among a few bushes is the only preparation she usually makes for this season of her patient expectation. Nature, almost exhausted by it's own fecundity, seems to inform her of the proper season for hatching, which she herself testifies by a clucking note, and by discontinuing to lay. Frugal housewives, who find the eggs more profitable than the chickens, often practise arts in order to protract this clucking season, and sometimes entirely remove it. When the hen begins to cluck, they stint her in the quantity of her food; and, if that device does not produce the desired effect, they plunge her into cold water. This effectually retards her hatching, but it often produces a cold; and, when that is the case,

case, the poor animal frequently sinks under the operation.

If the hen is permitted to follow her own inclinations, she will seldom lay above twenty eggs in the same nest, without attempting to hatch them; but, if they are removed in proportion as they are laid, she will still continue in a vain expectation of increasing the number. In a wild state, she seldom produces more than fifteen eggs; but then her food is procured with more difficulty, and she is perhaps sensible of the care requisite to maintain a large family.

When the hen begins to sit, her patience and perseverance are almost incredible: she continues immovable for some days; and even when compelled to quit the nest by the cravings of nature, she speedily returns to her duty. During the time of her sitting, she carefully turns her eggs, and often places them in different situations; till, at the end of three weeks, or thereabouts, the young brood begin to indicate their arrival at maturity; and, by repeated efforts of their bills, perforate the shells, the hen still continuing to sit till they are all excluded. The strongest and best chickens usually first emerge from their prisons; the weaker ones follow after; but the most feeble of all generally die in this nascent state. The whole family being emancipated, the parent leads them forth in order to instruct them in the art of providing for themselves. Her affection and dignity appear then to alter her very nature, and render her an amiable bird. No longer cowardly or voracious, she boldly and indiscriminately attacks every creature that appears to have any hostile intention towards her young, and abstains from every kind of food which they are incapable of swallowing. When marching at the head of her little troop, she demeans herself as their commander, and makes use of a variety of significant notes for the purpose of summoning them to their food, as well as of warning them of approaching danger.

A certain mode of treatment has been devised, by which a hen that in the ordinary way produces but one dozen of young yearly, may generate as many chickens as eggs; and, consequently, near two hundred. The artificial method of hatching chickens in stoves, as practised at Grand Cairo in Egypt, or in a chemical laboratory properly graduated, as has been effected by M. Reaumur, is the contrivance alluded to. The Egyptians build spacious ovens, of a figure very different from ours, in which they place a great number of eggs, and by means of a gentle fire communicate to them the same degree of heat as if they were under the hen. In this situation they remain till the usual time of hatching; and by that means ten or twelve thousand chickens have frequently been produced at a time. But in this colder climate, the great difficulty of rearing chickens does not consist in hatching, but in clutching them after they are excluded. To obviate this difficulty, Reaumur has made use of what he calls a woollen hen; which in reality is nothing more than placing the chickens in a warm basket, and throwing a thick woollen canopy over them; but the whole apparatus was attended with so great an expence, as to render the scheme rather an object of curiosity than profit. However, a much better substitute might be found, and that from among the species themselves. Capons may be easily taught to clutch a fresh brood of chickens throughout the year; so that, when one little colony is thus reared, another may be brought

to succeed it. Indeed, this method is frequently adopted. First, the capon is so tamed, as to feed from a person's hand; then, towards evening, the feathers of his breast are removed, and the bare skin rubbed with nettles. After this process, the chickens being put to him, they quickly run under his breast and belly; and, by their friction, probably allay the stinging pain which the nettles had before produced. This device is repeated two or three nights; till the animal conceiving an affection for the young brood thus sent to his relief, continues to afford them that shelter they require. From this time the capon fosters the chickens like a hen, clutching them, feeding them, clucking, and rendering them every kind of office natural to the most affectionate parent. A capon, habituated to this service, will not easily resign it; but, on the contrary, when one brood is grown up, he will suffer another nearly hatched to be put under him, and treat them with the same marks of tender regard.

The Cock, from his salacity, is generally supposed to be a short-lived animal; but how long one of these birds will live, if left to itself, is not as yet well ascertained by naturalists. As Cocks are kept only for the sake of profit, and in a few years become almost useless, very few persons, from mere motives of curiosity, make the tedious experiment of maintaining a proper number of them till they die naturally. Aldrovandus is of opinion that they would in general live ten years; nor is it indeed probable that they would exceed that age.

The flesh of the Cock contains a great quantity of oil and volatile salt; but it is less esteemed than that of the hen, or rather the pullet, being dryer, less agreeable to the palate, and more difficult of digestion. The flesh of the pullet also contains much oil and volatile salt, and forms a most excellent aliment: it is pectoral, easy of digestion, and nutritive; it agrees with persons of all ages and constitutions; but it is best adapted to those who are delicate and sedentary; labouring people requiring stronger, as well as more substantial food. The eggs, which are a common aliment, are equally beneficial in health and sickness; they digest quickly, are very nourishing, abate the acrimony of the fluids, appease coughs, and meliorate the voice; they are likewise salutary for the breath, and greatly exhilarate the spirits; but they lose much of their virtues when boiled too hard.

As farms cannot with propriety be said to be stocked without fowls, as well as beasts, it will perhaps not be improper to exhibit some approved directions for the management of these domestic birds. Those hens which are the best breeders, as well as layers, should be selected; the oldest, indeed, are always the best sitters, and the youngest the best layers; but no sort will be fit for either purpose if kept too fat. The best age for setting hens is from two to five years old; and the best season is February, though any month between that and October will answer.

If fowls are fed with buck or French wheat, or with hemp, canary, or millet-feed, they will, on account of this treatment, lay a greater number of eggs than ordinary; and buck-wheat, either whole or ground, made into a paste, will fatten them very expeditiously: but, if chickens are intended to be reared, each of them should have two or three barley-corns immediately as they are taken from their nests, and so continue to be fed till they are fit for fattening.

The Cock was consecrated to Minerva, as the symbol

symbol of vigilance, to denote that genuine Wisdom is always on her guard: he often accompanies Mercury, who is deemed an active divinity; and was commonly sacrificed to the Lares, because of his being brought up in habitations of which those household gods were the guardians.

COCK, BANTAM. The Bantam Cock, though small, is very courageous, and will encounter any creature that offers to oppose him. He has a reddish bill, fine red eyes, and a curious comb on the crown of his head. His ears are covered with a tuft of white feathers; and his neck and back with long streaming orange-coloured feathers mixed with yellow. His breast, and the lower part of his belly, are black; his thighs are covered with long stiff feathers, reaching considerably below his knees; and his legs are invested with small feathers as far as his toes. His tail consists of stiff black feathers; among which there are two large ones which hang over the rest in the shape of a sickle. This bird, though it derives its name from Bantam in the East Indies, from which place it was originally brought, is now pretty common in England.

The Bantam hen is small and beautiful: her bill is yellowish; her comb is small and pale; and there are a few white hairs on the crown of her head. The skin round her eyes is reddish and bare; and her ears are covered with a brown tuft of feathers. The rest of her body, together with her wings and tail, are yellow variegated with dark brown; and her thighs and legs are feathered almost down to the toes. It must be observed, however, that the colour of the Bantam hen varies frequently.

COCK, HAMBURGH. The Hamburgh Cock is a very stately fowl. His bill is thick at the base, but ends in an acute point; his eyes are of a fine yellow colour, encircled with dark-coloured feathers, under which there are tufts of black ones which cover his ears. His comb, which is reddish, reaches about half way over his head, the hind-part being covered with dark-coloured feathers inclining to black. His throat and gills are of the same colour, with an admixture of orange and red feathers waving round his neck, which are black at their extremities. His breast and belly are of a dark colour spotted with black; and his thighs, as well as the lower part of his belly, are of a shining velvet black. The superior parts of his neck and back are of a darkish red; his tail consists of red orange-coloured and shining black feathers; his legs are of a leaden hue; and the bottoms of his feet are yellow.

COCK, INDIAN, OF ALDROVANDUS. The bill of this bird, which Marcgrave calls Mituporanga, is black at the extremity, but in every other part covered with a saffron-coloured skin of the same kind with that encircling his eyes. The feathers on his head and neck are of a deep black, and of a silky gloss; and on the top of his head there are a sort of spiral feathers, which, when erected, form a beautiful crest: each of these feathers is two inches and a half in length, and two lines and a half in breadth. The rest of his body is black, with a small admixture of green; there are some white feathers about the vent; and his legs are cinereous.

COCK, MOUNTAIN. This bird, which is of the size of a peacock, appears to be of the pheasant kind. His neck is long, and of a blackish colour intermixed with light ash-coloured spots; his head is black; his beak is short, broad, and elevated in the middle; his breast and belly are black; and his

wing-feathers are pretty long, and of a dusky blackish colour. The feathers under his wings, as well as his thighs, are whitish; his legs are covered with feathers of a dusky hue down to the toes; and there are several white spots on his tail, which, according to some authors, increase in proportion to his age.

The Cock of the Mountains is a native of various parts of Europe, and particularly of Ireland and Wales; but he is never seen in England except through mere accident. His flesh is esteemed very delicate food.

COCKATOO. A very beautiful race of birds of the parrot kind, distinguished from all others by their elegant crests. There are several distinct species.

COCKATOO, GREATER. This species, which is about the size of the raven, has a large, strong bill, with a skin over the base of the upper chap, where the nostrils are placed. Both the skin and the bill are of a blueish-black colour; and the head is large in proportion to the bill. The eyes, which are dark, are surrounded with a bare ash-coloured skin; the feathers of the head are very long and loose; but the top ones, which are the longest, the bird can erect or depress at pleasure. The plumage of the Cockatoo is in general white, though tinged with other colours in several parts. The tail is short, and consists of feathers of an equal length; the legs and feet are of a lead colour; and the toes resemble those of the parrot, of which bird the Cockatoo is a variety. It is a native of the East Indies; and is frequently heard to cry 'Cockatoo,' with great distinctness of articulation.

COCKATOO, GREAT BLACK. This bird is very large, being equal in size to any of the kind. The bill is strong, very much arched, and of a dusky brown colour, with an angle on each side of the upper mandible. The eyes are dark; the sides of the head, from the eyes to the under part of the bill, are covered with a red bare corrugated skin; the crest is of a lightish grey colour, the feathers of which are pointed and reflected upwards at their tips; and are either raised or depressed at the pleasure of the bird. The whole plumage, from the crest downwards, is of a blueish-black or dark lead-colour, rather paler on the under side than on the back and wings; the tail is pretty long; and the legs and feet are of a brownish-black hue, and covered with a rough scaly skin.

This bird is a native of Ceylon, and other oriental regions; and a representation of it, drawn from the life, was first sent to Europe by that very industrious naturalist John Gideon Loten, Esq. a Dutch governor in India.

COCKATOO, WHITE, YELLOW-CRESTED. The bill of this species is of a dark ash-colour, serrated on the sides of the upper mandible. There are very long fine yellow feathers on the top of the head, which the bird sometimes raises to a splendid crest. The eyes are placed in spaces of light lead-coloured bare skin; and the pupils are black, their irides being a bright orange. Beneath each eye there is a large spot of yellow feathers; and the rest of the plumage, from the head downwards, is white, except a faint shade of yellow on the breast, the sides under the wings, and the insides of the wings. The wings and tail are almost of an equal length; and the legs and feet are covered with a dark blueish lead-coloured scaly skin.

COCKATOO, WHITE, RED-VENTED. This bird is about the size of a common parrot; the orbit of the

the eye is a yellowish red; the bill is white tipped with yellow; and the vent is white barred with crimson. The crest is white, except a few feathers underneath, which serve as a spring to support it when erected; and the rest of the plumage is of the same colour, with a yellowish tint towards the quill-ends of the feathers.

COCKLE. A bivalve shell, nearly equilateral and equivalve. The animal is a tethys; and there are two teeth, one on each side of the beak. Of the Cockle there are various species; which, however, may all be comprehended under the following, viz. articulate, multarticulate, heart, truncated, and square Cockles.

COCKLE, ACULEATED. This shell has high ribs diverging from the hinge to the edges; each rib is furrowed in the middle, and, near the circumference, beset with large, strong, and hollowed processes. One side of the shell projects farther than the other, and forms an angle. This variety, which is as large as a man's fist, is found near the Western and Orkney islands; and the colour is a yellowish brown.

COCKLE, ECHINATED. This shell is less than the preceding, being little more than six inches in circumference; the ribs, which are only sixteen in number, are echinated higher up; and the colour is white.

COCKLE, EDIBLE. This shell has twenty-eight depressed ribs, transversely striated; and is found on all sandy coasts, lodged a little beneath the surface, the situation being generally indicated by a depressed spot.

COCKLE, FRINGED. The colour of this shell is pure white; it is of a very brittle nature, having eighteen ribs rising into thinner spines; and it's size is no larger than that of a hazel-nut.

COCKLE, SMOOTH. The figure of this shell is suboval, and somewhat depressed; the colour is a deep brown with faint longitudinal striæ; and a few transversal, concealed by a fine epidermis. It measures about six inches and a half in circumference.

COCK-ROACH. An insect of the beetle kind, very mischievous in warm climates, but especially on board of ships. Catesby, in his History of Carolina, mentions a particular species under the name of *blatta maxima fusca peltata*, which has been accurately described by the ingenious Edwards under the appellation of the Greater Cock-Roach. The head is covered with a kind of shield, of a light brown colour round it's borders, and black in the middle, from which proceed two other shields of the same brown colour, and dusky in their centres, covering part of the upper side of the body, and exhibiting the appearance of short wings. The abdomen, or lower part of the body, which is of a reddish brown, and composed of eight annulations, is very flat, and serrated on it's sides. The head, which is black, is only seen from beneath; but the eyes are brown. The horns are nearly two inches long; the legs, which are six in number, are of a reddish brown colour, each consisting of three joints, those next the body being smooth; the middle joints are beset with sharp prickles; the exterior ones of the feet are rough and hairy; and there are two sharp claws at their extremities.

COCOI. A very beautiful Brazilian bird of the ardea kind, about the size of the common stork, the flesh of which is deliciously agreeable to the palate.

COCROTALEON. An animal generated between the hyæna and the lions, and so called by the ancients. This creature is described as possessing many qualities peculiar to the mantichora; and, according to some naturalists, is only another name for the same animal. It is likewise called leocrocotta; and sometimes simply crocotta, or corcotta.

COD. The largest of the genus of *afelli*, called by authors *afellus maximus*, and sometimes *afellus varius*, five *friatus*: but, according to Artedi, it is a species of the *gadus*; and is distinguished from others of that genus by having a beard at the mouth, the superior jaw longer than the inferior, and an unfurcated tail.

These fish inhabit only the northern parts of the world, and appear to be confined between the latitudes fifty and sixty-six; those which are caught on either side of these limits being few in number, and very indifferent in quality.

Immense quantities of Cod-fish are found on the banks of Newfoundland, and the sand-banks which lie off the coasts of Cape Breton, Nova Scotia, and New England; and it is probable that they resort thither on account of the vast quantities of worms produced in these sandy bottoms. Another cause of their particular attachment to these spots, is their vicinity to the polar seas, whither they resort for the purpose of spawning.

The Cod-banks of Newfoundland are a sort of submarine mountains. One of them is deservedly called the Great Bank, as it extends four hundred and fifty miles in length, and upwards of one hundred in breadth: it lies about seventy-five miles from the island of Newfoundland, in North America; and the largest, best-flavoured, and fattest Cod, are found on it's south side, those on the north being in every respect inferior. The season for catching them on this bank is from the commencement of February to the beginning of May. Those which are caught in May and June will keep tolerably well; but such as are taken in July, August, and September, unless extraordinary precaution is used, quickly spoil. Sometimes, indeed, this fishery ceases in a month or six weeks; but, at others, it lasts more than half a year.

On the approach of Lent, the fishermen hasten home, though they have not completed half their cargo, in order to attend the markets, which at that season are very advantageous. Sometimes, however, they effect a second voyage before others have collected a sufficient cargo for the first. The Cod are all taken with lines and hooks baited with the entrails of their own species, a small fish called capelin, and a shell-fish named chams; and an expert fisherman frequently catches four or five hundred in a day.

There are abundance of Cod-fish on the south and west coasts of Iceland, but very few are found on the north. They are likewise caught in great plenty on the coasts of Norway, in the Baltic, and off the Orkneys and Western Isles; beyond which latitudes their numbers gradually decrease as they advance towards the south; and before reaching the Straits of Gibraltar, they totally disappear.

Previous to the discovery of Newfoundland, the principal fisheries of Cod centered in the seas of Iceland and the Hebrides, which were the grand resort of ships of all commercial nations; but the greatest abundance was found near Iceland. This very evidently appears from the circumstance of Queen Elizabeth's soliciting permission of Christian

tian VII. of Denmark to fish in those seas; though she afterwards repented of her request, and instructed her ambassadors at that court to insist on the privilege of a free and universal fishery.

Providence has graciously ordained, that this most beneficial fish to mankind, should be so extremely prolific as to supply more than the deficiencies of the multitudes annually taken. Leewenhoek counted nine million three hundred and eighty-four thousand eggs in a Cod-fish of a middling size. They begin to spawn in our seas in the month of January, and deposit their eggs in rough ground, among rocks and shelves.

Cod-fish of a middling size are most esteemed for the table; and they are to be chosen by their plumpness or roundness, especially near their tails; and by the regular undulated appearance of their sides, as if they were ribbed. These, and other fish of this genus, are reckoned to be in season during winter; but the glutinous parts about their heads lose much of their delicate flavour after having been removed twenty-four hours from their native element. The general weight of those taken on our coasts is from fourteen to forty pounds, though they sometimes exceed sixty.

The Cod-fish is short in proportion to its bulk; the belly is very large and prominent; the jaws are almost of an equal length, with a small beard on the lower; the teeth are disposed in the palate, as well as the jaws; and the eyes are large. It has three soft fins on the back; the ventral fins are very slender, and the anal are two in number. It is ash-coloured on the back and sides, and usually spotted with yellow; the belly is commonly white; though the fish sometimes varies not only in colour, but also in the conformation of the head and other parts; and the side-line is broad, straight, and white, till it reaches opposite the vent, when it curves towards the tail.

Cod-fish are cured on ship-board in the following manner. Their heads are cut off, their bellies opened, and their guts taken out; and then they are laid side by side, head and tail, at the bottom of a vessel, for about eight or ten feet square. One layer being compleated, it is covered with salt, and another laid on that, which is covered as before. All the fish taken in one day are thus disposed of; but great caution is used not to intermix those which have been caught on different days. They remain thus for three or four days, when they are removed into another part of the vessel, and salted again; and in this state they are suffered to continue till the vessel has either got her full cargo, or till she departs for her destined port. Sometimes, however, they are put into barrels, and packed up; and in that case they are denominated Barrel-Cod.

These fish, however, are not all cured with salt; some are carried on shore, and dried on the beach; namely, such as are fished for along the coast of Placentia in Newfoundland, from Cape Race to the Bay of Experts, within which limits there are several commodious harbours and places fit for drying them. Those who intend to dry them in the sun always fish for them during the summer season. A smaller sort of these fish is usually selected for drying; because, as they sooner imbibe the salt, they are best adapted for that purpose.

The tripes, roes, and tongues of the Cod-fish, are also salted and barrelled; the latter of which are usually thrown into the sea, in order to draw other fish to a particular spot, especially pilchards, for which they constitute an excellent lure. An oil

which is extracted from the Cod is said to answer all the purposes of train-oil, and is much used by carriers.

CODA LANCEA. An appellation given by Italian naturalists to the species of duck called by others the *anas caudacuta*, and vulgarly known in some parts of England by the names of the cracker or sea-pheasant. It differs from all other birds of the duck kind in the peculiar structure of its tail, which has two feathers longer than the rest, and terminating in a point.

CODDY MODDY. A bird of the gull kind sometimes called the winter mew. Its length, from the tip of the bill to the extremity of the tail, is eighteen inches; and the expansion of its wings is three feet nine inches. The bill, which is two inches long, and very slender, is black at the tip, and whitish towards the base. The irides are of a hazel colour; the crown of the head, and hind-part and sides of the neck, are white marked with oblong dusky spots; the forehead, the throat, the middle of the breast, the belly, and the rump, are white; and the back and scapulars are a pale grey, the last being also spotted with brown. The coverts of the wings are a pale brown, edged with white; the first quill-feather is black, and the succeeding ones are tipped with white; the tail is white, and crossed near the extremity with a black bar; and the legs are of a dirty blueish white.

During winter, this bird frequents those moist meadows which are situated in the interior parts of England. That gelatinous substance commonly known by the name of star-shot, or star-jelly, is generally supposed to owe its origin either to this bird, or to some other of its kind; and is in fact nothing else but the indigested remains of earth-worms, on which these birds feed, and which they frequently evacuate.

COGNIOL. A name sometimes given to the fish more usually called colias; a kind of mackerel which differs principally from the other species in being of an inferior size.

COINUS. An appellation given by some conchologists to the genus of shells called *porcellana* and *concha venerea*.

COJUMERO. A term used by some naturalists to denote the manati or sea-cow.

COLCUICULTIC. The American name for a bird of the partridge kind described by Nie-remberg. It is variegated with black; white, and red, and exhibits a very beautiful appearance. These colours are for the most part not disposed in spots, but in longitudinal lines, on the back; on the belly, however, they assume the form of small short lines. The flesh of this bird is highly esteemed.

COLD-FINCH. A bird of the *cenanthe* kind, or nearly approximating to that genus, frequently seen near the Peak in Derbyshire. The belly is white; the breast is a yellowish brown; and the head and back are a brownish or greenish grey. The long feathers of the tail and wings are black, but with some variegation of white towards their extremities; and the bill is slender, straight, and somewhat ridged. It feeds on worms and other insects.

COLE-FISH. The *ascellus niger* of authors; and by Linnæus ranked as a species of *gadus*. See **COAL-FISH**.

COLE-MOUSE. A small bird of the tit-mouse kind. See **COAL-MOUSE**.

COLE-PERCH. The name of a small fish caught near Dantzick, and several other places; and much

much esteemed for it's delicate flavour. It bears a strong resemblance to the common perch, except that it is inferior in magnitude, has a larger head, and a greater variety of colours.

COLEOPTERA. An order of insects comprehending all those which have four wings; the external pair of which is hard, rigid, and opaque, and forms a kind of case for the interior pair; and whose mouths consist of two transverse jaws.

These animals are distinguished in English under the general appellation of beetles; of which naturalists have established a great number of genera, from the different conformations of their antennæ or horns, and other general marks, such as the scarabæus or beetle properly so called, the dermestes, cassida, coccinella, chrysomela, dytiscus, and tenebrio.

COLIBRI. A bird very remarkable for it's beauty, it's figure, it's manner of living, and the minuteness of it's size. It subsists on flowers, on which it seldom alights, but extracts honey from their nectaria by means of it's long, fine, and delicate tongue. There are some species of this bird which possess all the colours of precious stones, as well as the finest and most beautiful plumage that can be imagined. They fly with great rapidity; and are heard before they can be distinguished by the eye, making a kind of humming noise, from whence they are called humming-birds. See HUMMING-BIRD.

COLIC SHELL. A name given by some authors to the porcellana, or concha venerea, from it's supposed efficacy in curing the venereal disease.

COLIN. An American bird, called by the generality of writers the quail; but supposed by Nieremberg to be rather a kind of partridge. There are several distinct species of this bird, all very common in the Spanish West Indies, and much esteemed for the delicacy of their flesh.

COLIOU. An oriental bird described by Sonnerat, about the size of the European grosbeak. The head, neck, back, wings, and tail, are cinereous, with a tinge of yellow; the breast is of the same colour, and barred with black; the lower part of the belly and the top of the tail are reddish; the wings extend only a little beyond the origin of the tail, which is extremely long, and composed of twelve feathers of unequal lengths; the bill is black; the feet are of a pale flesh-colour; and the feathers which cover the head are narrow and long, and compose a crest which the bird can elevate or depress at pleasure.

COLLURIO. The name by which some authors have called the lanius or butcher-bird; the smallest, as well as one of the most destructive, of all the rapacious tribe.

COLMESTRE. A bird of the lagopus kind, more usually called otomo; and supposed to differ very little from the lagopus, except in changing it's colour during the summer season.

COLOCOLO. The Philippine name for a species of bird called also cassili, and corvus fluviatilis or the water-raven. It's figure very much resembles that of the common raven; but it is truly an amphibious bird, living principally under water. It's colour is black; it's neck is remarkably long; and it feeds on various kinds of fish, frogs, and serpents. The Colocolo is sometimes seen under water in transparent streams, where it appears to be perfectly at ease, and running about with great swiftness; and, at other times, it ascends to the surface, and dries it's wings in the air and sunshine.

COLPISCIS. An appellation given by some authors to the falx Venetorum, or sickle-fish, commonly called by the Venetians the marmot-fish.

COLUBER. The name of a very numerous genus of serpents; the abdomen of which is covered with scuta, and the under part of the tail with squamæ or scales. See VIPER.

COLUM. A bird very common at Surat in the East Indies, and supposed to be a species of the crane. It has a remarkable flexion in the aspera arteria; which the ingenious Dr. Parsons observes may serve for the retention of inspired air, while it plunges deep into the water in quest of food, or traverses different climates through various degrees of rarified and condensed air.

COLUMBA GREENLANDICA. An appellation given by some authors to a small, well-tasted aquatic fowl, called in English the sea turtle-dove.

COLUMBA MARINA, or SEA-DOVE. An East Indian sea-fish, apparently a species of the orbis or moon-fish. It receives it's name from the resemblance which it's head and prominent chest bear to those of the dove. It has no scales, but is variegated with several marks placed in a very singular manner on the back and sides. It is a scarce fish, and but little esteemed, being coarse and ill-tasted.

COLYMBIS. An appellation given by Bellonius to a species of duck remarkable for a large tuft of feathers behind it's head, on which account it is called in English the tufted-duck; but, by the generality of authors, capo negro, it's Venetian name.

COLYMBUS. The name of a distinct genus of birds in the Linnæan system, of the order of anseres. See DIVER.

COMB-BIRD. A gallinaceous bird, of the size of the turkey-cock, found near the Rivers Senegal and Gambia in Africa; the plumage of which is grey, streaked with black and white; and the wings are very large, but seldom used in flight. This bird has a very solemn and stately walk, holding it's head erect, which is covered with a kind of soft hair about four inches long, depending on each side, and curled at the points with the greatest regularity and beauty. It's tail, however, is it's principal ornament; the upper part of it being as black as jet and very brilliant, and the under as white as ivory. Of the feathers of the Comb-Bird the negroes make elegant fans.

COMBER. A Cornish fish of a very slender shape. The dorsal fin has twenty spiny and eleven soft rays, the pectoral fourteen, the ventral five, and the anal three spiny and seven soft; and the tail is rounded. The back, fins, and tail, are red; the belly is yellow; and beneath the lateral line there runs a parallel, smooth, even stripe, from the gills to the tail, of a silvery hue.

COMEDONES. An appellation given to a species of worms with which children in Misnia, and some other countries, are dreadfully afflicted; and of which Hoffman, in his treatise of endemial diseases, gives the following account. 'Children in the country are frequently seized with a sort of tabes, which so wastes their flesh that they appear mere skeletons. The common people generally believe these children to be under the influence of witchcraft; but such as have accurately examined into the nature of the malady, have discovered that it originates from certain worms, resembling black hairs

hairs or cords, lodged under the skin. When the skin is rubbed with honey in a bath, or any warm place, these vermin will make their appearance; but, when it is contracted by cold, they keep concealed within.'

COMPITA. A name by which some naturalists have called the *colymbus major*, or fisanelle, the great Venetian diver.

CONCHA. A genus of bivalve shells, containing a tethys. This genus, which is very comprehensive, includes the oyster, chama, muscle, heart-shell, pecten, solen, &c.

CONCHA FORTIFICATA. A name given by some authors to the genus of shells called *mur-* *rex* by others.

CONCHA GLOBOSA. A large genus of shells called *dolium* by the generality of authors.

CONCHA SPECTRORUM. A species of *voluta*, so called from some strange figures delineated on it's surface, representing caricaturas of terrible phantoms. It is a very elegant shell, and of a moderate size; the ground is white; and the figures, which are reddish, form three large and broad bands, which surround the shell at top and bottom, and in the centre; and between these there are several series of small spots. This shell is very rarely met with, and highly esteemed.

CONCHA VENERIS. A name expressive of several species of the *chama*. The shell is univalve and wreathed, and has a small longitudinal and denticulated chink or aperture. It is also called *Concha Porcellana*, from it's aperture's resembling in some measure the mouth of a hog; and *Concha Erythraea*, from it's being found in the Red Sea, near *Erythræum*. It appears that the ancients used the inclosed fish by way of aliment; and *Mundius* asserts, that it possesses a provocative quality. The shell itself, pulverized, has been deemed efficacious in several complaints; but apothecaries generally substitute cockles in it's stead, which are imagined to possess nearly the same specific virtues.

CONCHÆ ANOMIÆ. A genus of shell-fish principally found in a fossil state. See *ANOMIÆ CONCHÆ*.

CONCHÆ MARGARITIFERÆ. An appellation sometimes given to the *mytuli*, which produce pearls. See *MUSCLE*.

CONDOMA. An anomalous creature of the goat kind, so called by *Buffon*. It is supposed to be equal in size to the largest stag, but has hollow horns like those of the goat class, with varied flexures resembling those of the antelope: these are above three feet long; and, at their extremities, about two feet asunder. Along the back of the animal there runs a white list, which terminates at the insertion of the tail; and another of the same colour crosses this list at the bottom of the neck, which it entirely surrounds. Two more rings of the same kind encircle the body; one behind the fore-legs, and the other running parallel to it before the hinder. The colour of the rest of the body is greyish, except the belly, which is white. The creature has also a long grey beard; and it's legs, though long, are well proportioned.

CONDOR. Naturalists are divided in their opinions, whether this vast bird, which is a native of South America, should be referred to the eagle or the vulture tribe. It's astonishing strength and rapacity might naturally enough plead for it's ranking among the former; but the baldness of it's

head and neck might also be conceived to sink it to the latter. It is evident, however, that if magnitude and strength, combined with rapidity of flight and rapacity of disposition, deserve pre-eminence, no bird in the world can be placed in competition with the Condor. It possesses, in a much greater degree than the eagle, all those qualities which render it formidable, not only to the feathered kind, but also to quadrupeds, and even to man. Several authors assert, that the expansion of the wings of this creature is eighteen feet. The beak is so strong as to pierce through the body of a cow; and two of these birds will finish an ox at a single repast. The Condor is by no means terrified at the approach of any of the human form: however, through the benignity of Providence, there are but few of the species; for, were they at all numerous, every order of animals would probably wage an unsuccessful contest against them. The Indians assure us, that one of these enormous birds will carry off a deer, or a young calf, in it's talons, with the same facility that an eagle does a hare or a rabbit; that their sight is very piercing, and their appearance terrible; that as they require a very large space for the extension of their wings, they seldom frequent forests; but that they are much attached to the sea-shore, and the banks of rivers, whither they descend from their aerial nests on the summits of the highest mountains. The most modern accounts, however, inform us, that these formidable birds frequent the sea-coasts only at certain seasons, namely, when their prey happens to fail them on the land; and that they then feed on dead fish, and such other nutritious substances as the waves happen to throw on the beach.

Condamine has frequently observed these birds in several parts of the mountains of *Quito*, in Spanish America, hovering over a flock of sheep, and probably meditating their destruction. Indeed, the Spaniards are ever apprehensive lest these rapacious animals should prey on their children; and it is said that the Americans frequently hold out to one or other of them, as a lure, the figure of a child, composed of a very glutinous clay; on which it descends with excessive rapidity, and strikes it's pounces so deeply into it, that it becomes immediately entangled.

Mr. Steary, (the master of a ship) as he navigated the coasts of *Chili*, in thirty-three degrees of south latitude, observed one of these birds sitting on a high cliff near the shore, which some of the ship's company shot at with a ball, and killed. It's wings, when extended, measured sixteen feet; and one of the feathers, which was presented by the captain to *Sir Hans Sloane*, and is deposited in the British Museum, measures two feet four inches in length; and, in the largest part, is an inch and a half in circumference.

The only circumstantial account, however, of this amazing bird, is given us by *P. Feuillée*, who describes it in the following accurate manner. 'In the valley of *Ilo*, in *Peru*, I discovered a Condor, perched on a high rock before me: I approached within musquet-shot, and fired; but as my piece was only charged with swan-shot, the lead was not able sufficiently to penetrate the bird's feathers. I perceived, however, by it's manner of flying, that it was wounded; and it was with apparent difficulty that it reached another rock, about five hundred yards distant, on the sea-shore. I therefore charged again with ball, and hit the bird under the throat,

which

which made it mine. I accordingly ran up to seize it; but even in death it was terrible, and defended itself on it's back, with it's claws extended against me, so that I could scarcely devise the means of seizing it with security. Had it not been mortally wounded, I might have found this a dangerous enterprize; but having at last dragged it down from the rock, with the assistance of a seaman, I carried it to my tent, to make a coloured drawing.

'The wings of this bird, which I measured very exactly, were twelve feet three inches English from tip to tip. The great feathers were about two feet four inches long, of a beautiful shining black colour. The thickness of the beak was proportionable to the rest of the body; the length about four inches; the point hooked downwards, and white at it's extremity, but in every other part black as jet. A short brown-coloured down covered the head; the eyes were black, and surrounded with a circle of reddish brown. The feathers on the neck, breast, and wings, were of a light brown; and those on the back rather darker. The thighs were covered with brown feathers down to the knee; the thigh-bone was ten inches long; the leg five inches: the toes were three before, and one behind; that behind was an inch and a half long, and the claw with which it was armed was black, and occupied one half of the length. The other claws were in the same proportion; and both the legs and toes were covered with black scales; but in the last the scales were larger.

'These birds usually keep in the mountains, where they find their prey; they never descend to the sea-shore but in the rainy season; for as they are very sensible of cold, they retire there for additional warmth. Though these mountains they inhabit are situated in the torrid zone, the cold is often extremely severe, and they are covered with snow during a great part of the year.

'The small quantity of nourishment which these birds find on the sea-coast, except when the tempest drives in some great fish, obliges them to continue there but a short time. They usually reach the coast at the approach of evening, stay there during the night, and retire to the mountains in the morning.'

Some authors are of opinion that the Condor is not confined to America only; and conjecture that the great bird called the roc, described by Arabian writers, and so much exaggerated by fable, is but a species of the Condor. The great bird of Tarnassar, in the East Indies, which is said to be larger than the eagle, as well as the vulture of Senegal, which carries off children, are probably the same with the bird just described. The inhabitants of Russia, Lapland, and even Switzerland and Germany, are said to have known this animal. A bird of this kind was shot in France, which was said to measure eighteen feet across the wings; however, as one of the quills was described as being only somewhat larger than that of the swan, the extent of the wings must certainly have been exaggerated, since a bird of such enormous magnitude would undoubtedly have been furnished with quills of a much superior size. Be this as it may, we have no reason to regret that the Condor is scarcely ever seen in Europe, as it appears to be one of the most formidable enemies of the human race. Across the deserts of Pachomac, which it chiefly frequents, travellers very rarely venture: those gloomy regions are of themselves sufficient to inspire a degree

of secret horror, exhibiting to view only broken precipices, prowling panthers, forests only vocal with the hissing of serpents, and stupendous mountains rendered still more terrible by the Condor, the only bird that adventures to take up it's residence in those unfrequented climes.

CONEPATE, or CONEPATL. An American animal, of which Buffon makes two species, viz. the Conepate, and the zorille; but as they are both said to resemble the pole-cat in shape, and to be clothed with long fur of a black and white colour, the distinction seems unmarked in nature. The Conepate has five white stripes on a black ground, running longitudinally from the head to the tail. The zorille is rather more distinctly coloured, it's black and white colours being more bright; and it's tail black at it's insertion, and white at it's extremity. But whatever variations there may be either in the figure or colour of these little animals, they all agree in one common affection, that of being intolerably foetid and loathsome. All animals of the weasel kind are furnished with glands near the anus, from which exudes an odorous matter; in some species yielding a grateful perfume, as in the genet and civet; but, in others, a most noisome and offensive stench, as in the pole-cat and the animal now under consideration. In the Conepate these glands are very large, and furnish a matter sublimed to an amazing degree of putrescence. It is well known that a single grain of musk will diffuse it's scent over a whole house, which will continue for several months without much diminution; but the perfume of civet is insignificant when compared with the strength, duration, and insupportable odour, of this animal. It is usually voided with it's ordure; and, if a single drop happens to touch any part of a person's dress, it is almost impossible to wear it any longer.

This animal, we are informed, ejects it's excrements in order to save itself from it's pursuers; but it is highly probable that this ejection is only the convulsive effect of terror, and that it serves to defend it without any voluntary act of it's own. Certain it is, that it never emits this horrid smell except when enraged or affrighted; for it is often kept tame about the habitations of the American planters, without any sensation of offence. In a state of nature, it frequently steals into farm-yards, and destroys the poultry for the sake of their brains; but it is not prudent either to offend or pursue it on such occasions, as it then calls forth all it's scents, and no human being can possibly approach it. If, however, dogs venture to pursue this animal, it endeavours to escape by climbing up a tree; but, if driven to extremity, it discharges it's intolerable excrements against the hunters, though at a considerable distance; and, should a single particle of this ordure force itself into the eye, the injured person would run the greatest risk of losing his sight for ever. Even the dogs themselves lose much of their ardour when they find this extraordinary battery played off against them; they instantly turn from the pursuit, and leave the animal the undisputed master of the field; nor can any commands induce them to rally. 'In 1749,' says Kalm, 'one of these animals came into the farm where I lived. It was in winter time, during the night; and the dogs which were on the watch, pursued it for some time, till it discharged it's excrements against them. Though I was in bed a considerable way off, I thought I should have been suffocated; and the cows and oxen, by their lowings, testified how

much they were affected by the stench. About the end of the same year, another of these animals crept into the cellar; but did not exhale the smallest scent, because it was not disturbed. A foolish woman, however, who perceived it at night by the shining of its eyes, killed it, and at that moment its stench began to spread. The whole cellar was filled with it to such a degree, that the woman kept her bed for some days after; and all the bread, meat, and provisions, were so infected, that they were obliged to be thrown out of doors.

Notwithstanding its intolerable stench, the natives sometimes eat the flesh of this creature, which they assert to be tolerable food; but they previously take care to cut off those glands from whence the foetid matter proceeds.

CONGER. The name of the sea-eel, a species of the *muræna*, found on different parts of the British coasts; and, according to Dr. Borlase, sometimes weighing an hundred pounds.

The Conger differs from the common eel in the superior darkness of its colour; in its eyes being much larger in proportion; in having the irides of a bright silvery colour; the lower jaw shorter than the upper; the side-line broad, whitish, and marked with a row of small spots; the edges of the dorsal and anal fins black; in having more bones than the common eel; and lastly, in the vast superiority of its size, some of them having been caught near Scarborough which measured ten feet and a half in length, and were eighteen inches in circumference towards the middle.

The Conger, though a sea-fish, is supposed to generate like the fresh-water species: innumerable quantities of what is supposed to be their fry come up the Severn about the month of April, preceding the shad-fish, which probably visit that river for the purpose of feeding on them. During their season, they are so very numerous, as to be usually taken in sieves made of hair-cloth, and fixed to long poles. The fisherman, standing on the brink of the river, throws in his net as far as possible, and, drawing it out again almost instantaneously, encloses multitudes of these fish at every effort. They are called elvers, and are reckoned very delicate food.

The Congers are extremely voracious, preying on other fish without exception; and, like all the eel kind, they are extremely fond of carcases, being frequently found lodged in such as are accidentally taken out of the water. In Cornwall, these fish form a considerable article of commerce; great quantities of them being taken on that coast, and exported to Spain and Portugal. They are sometimes caught with hooks and lines; but, as that method is very tedious, fishers generally use what they call bulwers, being strong lines, perhaps five hundred feet long, having sixty hooks, each eight feet asunder, baited with pilchards or mackrel, and sunk to the bottom of the sea by means of weights affixed to them. Fishermen are sometimes under great apprehensions from large Congers, which are apt to entwine themselves round their limbs; and they therefore dispatch them as quickly as possible by striking them on their bellies.

When these fish are about to be cured, they are slit, and suspended on drying-frames, as they contain a considerable quantity of fat which must always be exuded before they are fit for use. It is said that a Conger of a hundred pounds weight will waste in drying to twenty-four pounds; for which

reason the smallest are generally preferred, as being soonest cured.

The ingenious Pennant thinks, that a fishery of Congers would be very beneficial to the inhabitants of the Hebrides; though they might probably undertake it at the first with a degree of repugnancy, on account of their absurd aversion to the eel kind.

CONOPS. A genus of the diptera order of insects, with an extended jointed rostrum, including thirteen species.

CONUS. The Linnæan appellation for shells of the voluta kind. See *Volute*.

COOK. A species of fish sometimes caught in great abundance on the Cornish coasts. It is extremely full of scales, and does not grow to any considerable size. The back is purple and dark blue; the belly is yellow; and the tail is rounded.

COOT. A distinct genus of birds of the order of grallæ; the distinguishing characters of which are, that the beak is convex; the thighs are half naked; the feet are furnished with four toes; the nostrils are oblong; and the forehead is entirely naked.

Of these birds Linnæus enumerates seven species.

COOT, COMMON. This bird weighs about twenty-four ounces; its length, from the tip of the bill to the end of the tail, is sixteen inches, but to the end of the claws twenty-two inches; and the expansion of the wings is two feet and a half. The bill is sharp at the point, and of a white colour, with a small tincture of blue. The feet are blueish, or dusky green; and about the joints of the toes there are semicircular membranes, two on the inner toe, three on the middle, and four on the outer; or, in other words, the three four toes have lateral membranes on each side, scalloped; the interior with two, the middle with three, and the exterior with four scallops. From the bill, almost to the crown of the head, there is an excrescence, or fleshy lobe, destitute of feathers, soft, smooth, and round; on which account this bird is by some called the bald Coot. The head and body are entirely black; the breast and belly are of a lead-colour; and the shape resembles that of a moor-hen.

This bird is generally seen hovering over large streams and rushy marginated lakes; where it makes its nest of such weeds as are supplied by the water, laying them among the reeds, floating on the surface, and rising and falling with the water. This nest is supported by the reeds among which it is built, so that it is seldom washed into the middle of the stream; but, when this accident happens, the bird still maintains her station like a mariner in a boat, and, by the assistance of her legs, steers her treasure into the nearest place of security. She generally lays five or six large eggs, of a dirty whitish hue, sprinkled over with minute deep russet-colour spots. Her young, when just hatched, are very deformed, and their heads are covered with a coarse red down. In winter these birds frequently resort to the sea; and near Southampton in particular the water sometimes appears as if entirely covered with them, so that they are often exposed to sale in that market.

COOT, LARGER. This bird entirely resembles the former, except in its superior size and the exquisite blackness of its plumage. It is found in Scotland; and also in some English counties, particularly in Lancashire.

COOT OF HUDSON'S BAY. The extremity of the upper mandible of this bird is a little crooked; the neck is partly of a fleshy colour; the head is cinereous; the body is brown above, and white below; there is a white spot on each wing; and the legs are brown.

COPROPHAGOS. The appellation given by many authors to the common yellowish-coloured fly found on human excrements. There are various species seen on the ordure of different animals; and they are thence called merdivoræ.

COQUALLIN. A beautiful animal of the squirrel kind, very remarkable for the variety of its colours. Its belly is of a bright yellow; its head and body are variegated with white, black, brown, and orange; and it is destitute of any tuft at the extremity of its ears. This animal, however, seems incapable of ascending trees like the rest of its class.

COR MARINUM. The name of a class of echini marini; the characters of which are, that the anus is placed on the side of that point of the shell which appears as if cut off; and that the mouth, which has two lips, is placed in the third region of the axis of the base.

COR VENERIS. An appellation given by conchologists to a very elegant species of the cordiformis, or heart-shell, which approaches nearer in shape to a real heart than the bucardium, or any other shell of this genus. There are only three known species of the Cor Veneris; namely, the denticulated one, with very elegant rose-coloured spots; the white boat-shell, furrowed internally; and the little rose-coloured kind; but they are all extremely elegant and valuable shells.

CORACINUS. A fish caught in the Mediterranean sea, called by some naturalists skiaena; and by Aldrovandus and Salvian, umbra. Its colour resembles that of the common tench, but it is shaped somewhat like the perch. Its scales are small; its mouth is of a moderate size, but well furnished with teeth; and its tail, when extended, is of a roundish figure. The extremities of the rays or nerves of the tail-fin are black; and the other fins are also of that colour.

CORACIUS. A Linnæan term for the pica, or pye. In that great naturalist's system, this bird makes a distinct genus; the distinguishing character of which is, that the inner tail-feathers grow gradually longer and longer.

This bird likewise obtains the name of pyrrhcorax; and, in English, is called the Cornish chough. It is shaped like the jack-daw, but rather resembles the common crow in its size; and the beak is long, red, and somewhat incurved at the point. It frequents rocks and ruined buildings about the sea-shores; and is found about the high cliffs all along the western shores of England. Its voice is very similar to that of the jack-daw, but hoarser and rougher.

CORAX PISCIS, or CROW-FISH. An animal of the cuculus kind, very much resembling the swallow-fish in its shape. The bones which cover the gills of this fish all terminate in sharp spines. See FLYING-FISH.

CORBEIL. The name of a curious species of the chama. It is of the larger kind; and deeply striated, both longitudinally and transversely, forming a kind of reticulated surface, in imitation of basket-work.

CORCULUS. An appellation given by some authors to a small species of cordiformis, or heart-shell, of a rose-colour.

CORDYLA, or CORDYLUS. A name by which some naturalists express the thynnus, or tunny-fish, while in its adolescent state.

CORDYLUS. A species of lizard, called also uromastyx and caudiverba. It is larger than the green lizard; and the tail is rounded and divided into a number of circles covered with scales, which coat them over like the tiling of a house.

COREGONUS. A genus of fishes of the malacopterygious or soft-finned kind; the characters of which are these: the branchiostege membrane on each side contains seven, eight, nine, or ten bones; the pinna dorsi is placed nearer the snout than the ventral fins; and the teeth are so minute as to be scarcely perceptible in several of this class.

Artedi enumerates four species of this genus. The term Coregonus is composed of Kore, the Pupil of the Eye; and Gonias, an Angle or Corner; and is applied to this genus of fishes from the singular structure of this part of the eye, the pupil running out into an acute angular corner in the anterior part in all the species.

CORETT. A large East Indian fish of the tunny kind, supposed by many to be the same with the common tunny. It grows to the length of six or seven feet; the eyes are large, and their irides yellow; the tail is broad and forked, and of a yellowish-green colour; the belly-fins are yellowish; and the belly itself is a fine bright glossy blue, with a silvery cast. This fish, which is generally caught with hooks, is esteemed very delicious.

CORMORANT. A large sea-bird of the order of anseres, called by authors corvus aquaticus, or the sea-raven. This bird is about three feet four inches in length; the extent of its wings is four feet two; and its weight exceeds seven pounds. The bill is dusky, and five inches in length; the base of the lower mandible is overspread with a naked yellowish covering, which extends under the skin, and forms a kind of pouch; and a loose skin of the same colour reaches from the upper mandible round the eyes and angles of the mouth. The head and chin are a dull black; but under the chin of the male the feathers are white, and the head in that sex is adorned with a short, loose, pendent crest. The coverts of the wings, the scapulars, and the back, are of a deep green, edged with black, and glossed with blue; the quill-feathers and the tail are dusky; the breast and belly are black; and in the midst of the last there is frequently a bed of white. The legs are strong, short, and black, the middle claw being ferrated on the inside; and the irides are of a light ash-colour.

Notwithstanding the apparent heaviness of the structure of Cormorants, few birds are more powerfully predaceous. As soon as winter approaches, they are seen dispersed along the sea-shores, entering the mouths of fresh-water rivers, and threatening destruction to all the finny tribe. They are uncommonly voracious; and their digestion is so astonishingly rapid, that their appetites seem to be always craving, yet never to be satisfied. This gnawing sensation, however, may probably be stimulated by the great quantities of small worms lodged in their intestines, and which their unceasing gluttony contributes to engender.

Thus formed with the grossest appetites, this bird, even in its most healthful state, sends forth a most rank and offensive smell, by far more foetid than putrid flesh. Its form is disagreeable, its voice is hoarse and croaking, and all its qualities are obscene. It cannot then surely appear strange, that

that Milton should make Satan personate this bird, when he sends him on the most infernal of all purposes, namely, to survey with pain the beauties of Paradise, and to fit devising death on the tree of life. It has been observed by some critics of this sublime poet, that perching a water-fowl on a tree implied no great acquaintance with the history of nature; however, it must be remarked, in vindication of Milton, that Aristotle expressly asserts of the Cormorant, that it is the only aquatic fowl which at any time either sits or roosts on trees.

This bird seems to be of a multiform nature; and, wherever fish are to be found, it watches their migrations. It is seen as well on land as at sea; it feeds on fresh-water as well as sea-fish; it generally builds its nest in the cliffs of rocks; and preys not only by day, but also during the night.

The indefatigable industry and great dexterity of the Cormorant in catching fish, was probably the only motive which induced some nations to keep this bird in a tame state; and Willughby assures us, that it was once bred by the English for that very purpose. The description of their manner of fishing is thus delivered by Faber. 'When they carry them out of the rooms where they are kept, to the fish-pools, they hoodwink them, that they may not be frightened by the way. When they are come to the rivers, they take off their hoods; and having tied leather thongs round the lower part of their necks, that they may not swallow the fish they catch, they throw them into the river. They presently dive under water, and there for a long time pursue the fish with wonderful swiftness; and when they have caught them, rise to the surface of the water, and pressing the fishes lightly with their bills, swallow them, till each bird hath devoured five or six fishes after this manner. Then their keepers call them to the fist, to which they readily fly; and, one after another, vomit up all their fish, only a little bruised with the first nip given in catching them. When they have done fishing, setting the birds on some high place, they loose the strings from their necks, leaving the passage to the stomach free and open; and for their reward they throw them a part of the prey, to each one or two fishes, which they will catch most dextrously as they are falling in the air.'

At present, the Cormorant is trained up in every part of China, for the purposes of piscation, where lakes and canals are very numerous. 'To this end,' says La Compte, 'they are educated as men rear up spaniels or hawks; and one man can easily manage a hundred. The fisher carries them out into the lake, perched on the gunnel of his boat, where they continue tranquil, expecting his orders with patient attention. When arrived at the proper place, at the first signal given, each flies a different way to fulfil the task assigned it. It is very pleasant, on this occasion, to behold with what sagacity they portion out the lake or the canal where they are stationed on duty. They hunt about, they plunge, they rise a hundred times to the surface, till they have at last found their prey; they then seize it in the middle with their beaks, and carry it regularly to their master. When the fish is too large, they then give each other mutual assistance; one seizes it by the head, the other by the tail, and in this manner they carry it conjointly to the boat. There the boat-man stretches out one of his long oars, on which they perch; and, being freed from their burden, they again fly off to pursue their sport. When they are wearied, the proprietor suffers them to enjoy a short interval of rest; but they are never

fed till their task is accomplished. In this manner they supply a very plentiful table; but still their natural gluttony cannot be reclaimed by education. They have always, while they fish, a string fastened round their throats, to prevent them from devouring their prey; as otherwise they would at once satiate themselves, and discontinue their pursuit.'

The Cormorant is the most expert fisher of all birds, and is generally on the wing; and the astonishing celerity with which it descends from immense heights in the air in order to dive for its prey, affords matter of agreeable amusement to a person stationed on an adjacent cliff.

This large bird is seldom seen in the air, except at those times when it perceives fish almost immediately under it; and even then they must be pretty near the surface of the water before it will venture to dart on them: if the fish are at a depth beyond what the impetus of the Cormorant's flight renders it capable of diving to, they certainly escape; for this animal is by no means capable of moving so fast under water as a fish can swim. It seldom, however, makes an unsuccessful attack; and it is often seen rising heavily with a fish larger than it can conveniently devour.

The Kamtschadales adopt a singular method of catching Cormorants. They fasten a thick iron or wooden hook to a long rope or strap; bait the hook with a whole fish, the point of the hook coming out near the back fin; and then throw it into the sea. This lure the Cormorants observing, gather about it in flocks, quarrel for it, and the strongest swallows it: the bird, thus entangled, is drawn on shore by the natives; who construct needle-cases and combs of the bones of its wings.

CORNET. A name given by some French writers to a genus of shells, called by others *cu-culli*, and by the generality of naturalists *volutæ*.

CORNUTA. An appellation given by Gesner, and some others, to the fish called also *lyra*, and *lyra altera*. It is of the trigla kind, and is distinguished by Artedi under the name of the trigla with many cirri and an octagonal body.

CORNUTUS PISCIS. A name given by Ray to an East Indian fish, called *hoorn visch* by the Dutch. It has a horn of a very singular construction on the back part of its head, or the beginning of its back; and two others on its belly, which are very crooked and brittle, and seem to partake of the nature of spines, which in some fish are placed before their neck and belly-fins. A wound inflicted by one of these fish is reckoned dangerous; and is generally cured with much difficulty, especially if any part of the horn is broke off, which, from its natural brittleness, is usually the case.

COROCORO. A Brazilian fish somewhat resembling the coracinus of the Mediterranean. It has a sipus in the back, in which it can bury its fins at pleasure.

CORONA ÆTHIOPICA. The name of a sea-shell of the *dolium* or *concha globosa* kind.

CORONA IMPERIALIS. A kind of *voluta*, which differs from other shells of that family in having its head adorned with a number of points, which form a sort of crown.

There are four species of this shell in the cabinets of conchologists.

CORVO. An appellation sometimes given to the *umbra* or *chromis* of authors; a large fish commonly caught in the Mediterranean seas, and which, while young, is brought to the markets of Italy.

CORVUS.

CORVUS. A distinct genus of birds of the order of picæ, in the Linnæan system; the distinguishing characters of which are, that the bill is sharp and convex; that the nostrils are covered with recumbent bristles; that the tongue is cartilaginous and bifid; and that the feet are formed for walking. Of this genus, which includes nineteen species, are the crow, the raven, the jack-daw, &c.

Corvus is likewise a name given by Paulus Jovius to the faber or doree.

CORVUS AQUATICUS, the Pelicanus Carbo of Linnæus. A name given by authors to the cormorant, or corvorant, on account of it's voracious appetite, which originates from a great number of small worms lodged in it's stomach and intestines, and causing a very fudden digestion. See **CORMORANT**.

Corvus Aquaticus is also a name given to the acacotl, a very beautiful Mexican bird, of a lucid greenish, blackish, and purplish hue. It feeds on fish, from which circumstance it's flesh contracts a very rank and unpleasant taste.

CORVUS AQUATICUS MINOR. A name by which Ray has very properly denominated a bird common on our northern coasts, and there called the shagge. It seems to be a genuine species of the cormorant.

CORVUS CORNUTUS. An appellation given by some authors to the Indian raven with a corneous beak, more commonly called the rhinoceros-bird.

CORVUS FLUVIATILIS. A very remarkable bird peculiar to the Philippine Islands, resembling the common raven by being of the amphibious kind; and called by the natives cassili, or co'ocolo.

CORVUS INDICUS. A bird of the raven kind, very common in the Molucca islands. It is of a considerable magnitude, and armed with a large beak and very strong claws. It is not carnivorous, but is very destructive to the fruit of the nutmeg-tree. It's flesh, which is very delicate, partakes greatly of the aromatic flavour of it's food.

CORVUS SYLVATICUS. A bird described by Gesner, and supposed by Willughby to be the same with the coracias, or pyrrochorax; but, when minutely examined, it differs essentially from that bird in size, as well as in having a crest on it's head. Gesner says that the Corvus Sylvaticus is of the size of the common hen. It appears at a distance of a deep black; but, when viewed nearer, and in the sunshine, of a fine glossy green. It's tail is short; and it's toes are very long. It feeds on frogs, fish, and other small animals; and builds it's nest in the ruins of old buildings, where it lays two or three eggs. It flies very high; and, when young, is accounted delicate food.

CORVUS PISCIS. A river-fish of the chub kind, common in Italy and some parts of Germany; called by Gesner capito fluviatilis rapax; and, by the common people, noppe. It seldom exceeds six or seven pounds in weight; but is extremely rapacious, and pursues it's prey with such eagerness, that it frequently strands both itself and them. It is caught at all seasons of the year, but never in any great plenty; and it's flesh is esteemed very palatable.

CORYPHÆNA. A genus of fish of the malacopterygious kind, and of the thoracic order in the Linnæan system; the distinguishing characters of which are these: the branchiostege membrane contains five bones on each side, exclusive of two

others which lie under the bony coverings of the gills, and are therefore not visible: the fins are seven in number, and one on the back reaches from the top of the head to the tail; the head terminates in a very obtuse form, or, as it were, perpendicularly declivious from the vertex to the mouth; and the head and body are both somewhat compressed.

Linnæus enumerates twelve species of this genus, and Artedi three.

COTATUA. A Philippine name for a species of parrot, called also calangay. The body is entirely white; and on the head there is a crest of feathers. It is of the size of a common pigeon.

COTATUA MAJOR. A very beautiful species of parrot common in the Philippine islands. It is about the size of a common hen; and of a most delicate white-colour, except the beak and legs, which are black. This bird is with great facility taught to imitate the human voice, and articulates more distinctly than any other of the parrot class.

COTTUS. A genus of the acanthopterygious fishes; the characters of which are these: the branchiostege membrane on each side contains six very distinct bones; the head is broader than the body, depressed, and prickly; there are two dorsal fins, the foremost containing several flexile prickles; the ventral fins are small; and the skin of the whole fish is smooth, and free from scales. There are three species of this genus; one of which is the small fish known by the name of the miller's thumb.

COU DOU, or CU-DU. A species of deer met with at the Cape of Good Hope. It is distinguished by the length of it's body, which is disproportionate to it's height; the delicate lightness of it's limbs; the uncommon stateliness and beauty of it's horns, which are smooth, hollow, and beautifully transparent like tortoise-shell; the stripes of white on it's skin; a black corneous substance on it's upper jaw, which supplies the place of teeth; a stripe of white hair passing from the middle of the horns to the tail; and a tuft of hair reaching from the neck to the breast.

There are also animals of this kind both in Asia and America, though they differ from each other in a few particulars.

COUGAR. This animal is sometimes called the red tiger, but is extremely different from the tiger of the east. It is a native of the continent of America, from Canada to Brazil; and in South America it is called puma, and is by far the most formidable and mischievous of all the animals of the new world. In the warmer regions, the Cougar is fierce and ravenous to a very high degree, but in North America it's ferocity is greatly subdued by the rigours of the climate. In South America, where the towns generally border on the forests, these creatures make frequent incursions by night into the very houses, from whence they carry off fowls, dogs, and other domestic animals. The Cougar, however, is both weak and contemptible when compared with the oriental tiger, as being hardly able to contend with any of the human species singly. The negroes and Indians are very dextrous in encountering it; and some of them, even for the sake of it's skin, explore it's retreats. The weapons used in this seemingly dangerous business consist only of a lance two or three yards long, made of a ponderous kind of wood, and having it's point hardened in the fire; and a kind of scymitar about three quarters of a yard in length.

Thus armed, the Indian waits till the Cougar makes an assault on his left-hand, which wields the lance, and is wrapped up in a short baize cloak. Sometimes the animal, aware of its danger, seems to decline the combat; in which case its antagonist endeavours to provoke it by a slight touch of the lance, in order, while he is defending himself, to strike a sure blow. As soon, however, as the creature feels the lance, it grasps it with one of its paws, and with the other strikes at the assailant's arm. It is then that the negro nimbly aims a blow with his scymitar, hitherto concealed in his other hand, and hamstring the animal, which instantly draws back, but being enraged, as suddenly returns to the charge. However, on receiving another stroke, it is totally deprived of the power of motion; and the Indian, after dispatching it without molestation, strips off its skin, and cuts off its head, with which he returns to his companions as trophies of his prowess.

But though man in general prevails over this ferocious creature, it often successfully attacks the crocodile; and, indeed, is the only Transatlantic animal which is not afraid of the contest. When the tiger, impelled by thirst, which it seems incessantly to feel, approaches a river for the purpose of drinking, the crocodile, which indiscriminately preys on every creature, lifts its head above water, in order to seize it; but the Cougar, not less rapacious than itself, and unacquainted with the power of the enemy, boldly ventures to seize it, and plunges its claws into its eyes, the only vulnerable part. On this the crocodile instantly dives under water; and, as the tiger will sooner die than relinquish its hold, it of course descends with its antagonist. There the combat continues for some time; namely, till the Cougar either escapes from its disabled adversary, as is sometimes the case, or is drowned.

In Guiana, Cougars are extremely numerous; and, when the French first settled at Cayenne, these animals proved a dreadful scourge to the infant colony; but by degrees they were repulsed and destroyed, and are now no longer found in the vicinity of that place. In Brazil, Paraguay, and the country of the Amazons, they are frequently seen climbing up trees, either in quest of prey, or to avoid their pursuers. Like all other animals of the cat kind, they are terrified at the sight of fire; and seldom venture near it, as they suspect their enemies to be always in its vicinity, and their nocturnal eyes are dazzled by its brightness.

The fur of the Cougar is soft, and much esteemed by the Indians, who wrap themselves in it during the winter months. The back, neck, rump, and sides, of this animal, are of a brownish red, mixed with dusky hairs; the belly and claws are whitish; and the teeth are of a vast size. It purrs like a cat; and its tail is above two feet and a half long.

From the nature and description of this animal, it might naturally enough be supposed that its flesh is improper for food; nevertheless, there are several accounts which alledge the contrary, and assert, that it is even superior to mutton. However, what Des Marchais observes seems to be most consonant to truth; namely, that the skin is the most valuable part of the animal, and that the flesh is generally lean and rank.

COULTER-NEB, or COUNTER-NEB. An appellation given in some parts of England to the *anas arctica* Clusii. See Duck.

COW. A well-known animal; the distinguish-

ing characteristics of which are, that there are eight cutting teeth in the lower jaw, and none in the upper; that the skin along the lower side of the neck is pendulous; and that the horns bend out laterally.

Of all ruminating animals, or those which chew the cud, the Cow kind deserves the first rank both for beauty and utility. The horse is more properly an animal which falls to the lot of the rich; sheep are chiefly gregarious, and require attendance; but the Cow is more particularly the poor man's blessing, and equally constitutes his riches and support. Many of the peasantry have no other possession than a cow; and even of those advantages which are derived from this useful creature, the poor are but the nominal possessors. Its flesh they must not presume to taste, since their whole fortune would then at once be lost; its young they are obliged to fatten for sale, as a luxury to which they can have no pretensions; and its very milk is converted into butter and cheese for the tables of their masters; while the only share they derive from their possession, is the refuse of the milk, and the choice of their market.

In those countries, however, where some regard is paid to the natural rights of mankind, this excellent animal is of more general advantage. In Poland, Germany, and Switzerland, every peasant keeps two or three Cows, not for the benefit of his master, but the support of his family. The meanest hind in those countries can kill one Cow for his own table, which he salts and hangs up, and thus preserves a delicacy through the revolving year. There is scarcely a cottage in those countries which is not adorned with this mark of hospitality; a piece of beef suspended there is considered as elegant furniture, and argues the possessor's opulence and ease. But in Britain, where we triumph in imaginary liberty, yet submit to every evil of monopoly and extortion, the poor peasantry seldom have it in their power to purchase meat; and even butter is considered as an article of extravagance.

However, the climate, as well as the pasture, of Great Britain, is excellently adapted to the moderate nature of the Cow; and the verdure and fertility of our plains are perfectly suited to its manner of feeding; for, being destitute of the superior fore-teeth, it loves to graze in high and rich pastures. It does not seem to be very anxious as to the quality of its food, provided it has always an abundant supply; and makes no particular discrimination in the choice of its herbage, but eats without ceremony whatever comes in its way. For this reason, in our English pastures, where the grass is rather high and flourishing, than succulent and nutritious, the Cow thrives admirably; and there is no part of Europe in which this animal grows larger, yields more milk, and fattens sooner.

In a course of years, the horse and the sheep are known to impoverish the soil; but, in that where the Cow has been bred, the pasture acquires a finer surface, and every year becomes more beautiful and level: for the horse being furnished with fore-teeth in his upper jaw, nips the grass closely, and selects that which is the most delicate and tender; the sheep also, though with respect to its teeth formed like the Cow, only bites the most succulent parts of the herbage. These animals therefore cut the finer grass too closely, and suffer the high weeds and ranker grass to vegetate and over-run the pastures; but the Cow being obliged to feed on the

the tallest vegetables, eats them all down, and thus levels the surface of the grafs.

The age of the Cow is known by it's teeth and horns. It is furnished with eight cutting teeth in the lower jaw; the two middlemost of which drop out at the age of ten months, and are replaced by others which are broader, but not so white: at the age of sixteen months the two next milk-white teeth disappear, and others succeed them; and thus, at the end of every six months, the animal loses and gains, till, at the age of three years, all the cutting teeth are renewed, and then they are long, regular, and pretty white. But as the creature advances in years, the teeth grow black and irregular; their inequalities become smother, and consequently the animal chews it's food with more difficulty. Thus the Cow often declines from this single cause; for as it requires a great deal to support life, and as the smoothness of it's teeth renders the difficulty of chewing very great, a sufficient quantity of food cannot be supplied to the stomach; in which case the poor animal droops in the midst of plenty, is gradually more and more emaciated, and at length expires.

The horns are likewise another, as well as a more unerring method, of determining the age of the Cow. At three years of age it sheds it's horns, and new ones spring up in their places, which are afterwards undeciduous; at four, it has small pointed, smooth horns; and, at five, they become larger, and are marked round with the former year's growth. Thus, while the animal continues to live, it's horns also continue to lengthen, and every year a new ring is added to their bases; so that, by allowing three years before their appearance, and then reckoning the number of annulations, the creature's age may be exactly known.

The English breed of Cows has been so greatly improved by a foreign mixture, that we cannot with any degree of certainty point out the original kind in these islands. Those which may be supposed to have been purely British, are much smaller than those on the northern parts of the continent of Europe. In the Highlands of Scotland, the cattle are extremely small; and many of them, males as well as females, are destitute of horns. The Welch runts are considerably larger; and the Cornish black cattle are about the size of the latter. The large species now propagated in most parts of England, are either entirely foreign, or our own breed improved by a cross with the foreign kind. The Lincolnshire Cows derive their size from the Holstein breed; and the large hornless cattle which are bred in some counties of England, were imported originally from Poland. England was once famous for a wild breed of these animals, but which no longer exist; and this nation may justly boast of having fewer wild animals than any kingdom of Europe. Cultivation and agriculture are sure to banish them wherever they are found; and every addition which a country receives from art diminishes the number of those animals which are only adapted to a state of nature.

The Cow seems more liable to changes from it's pasture and climate, than any other quadruped. In the different parts of this narrow island, we can easily trace the great varieties produced among these animals by the richness or poverty of the soil. In some, they grow to an astonishing bulk; and, in others, they are proportionably diminutive. The breed of the Isle of Man, as well as of most parts of Scot-

land, is in general considerably less than that of either England or Ireland: they are also differently formed, the dewlap being much smaller, and having more of the neck of the ewe. A few years since, this circumstance was considered as a deformity in cattle; and the Cow was chosen, according to Virgil's direction, with a large dewlap; however, it seems to be at present the universally received opinion, that the Cow wants in udder what it has in neck; and the larger the dewlap, the smaller the quantity of it's milk. Graziers therefore endeavour to blend the two breeds, the large Holstein with the small Northern; and from this union is produced that fine milch breed which excels the cattle of every other quarter of the globe.

In short, in almost every part of the world, the Cow is found either large or small, in proportion to the richness or poverty of it's food. Thus Africa is remarkable for the largest and smallest cattle of this kind; as is also India, Poland, Switzerland, and several other parts of Europe. Among the Eluth Tartars, where the pastures are remarkably rich and nourishing, the Cow grows to such an amazing size, that a tall man can hardly reach the tip of it's shoulder: in France, on the contrary, where this animal is stinted in it's food, and driven from the most flourishing pastures, it greatly degenerates, and is neither valuable for it's milk or it's flesh. The variations, however, in the size of this animal, are less remarkable than those of it's form, it's hair, and it's horns: in many, indeed, these variations are so extraordinary, that they have been considered as different kinds of creatures, and names have accordingly been applied to them as a distinct species; when, as Buffon asserts, they are in fact the same. In this manner the urus and the bison have been considered, from the variety in their make, to be distinct in their production; but they are all in fact the descendants of one common stock, possessing that certain mark of unity, namely, their breeding and propagating together. Naturalists therefore have laboured under an obvious error, when on account of the extreme bulk of the urus, or the hump on the back of the bison, they have assigned them different parts in the creation, and separated a class of animals which were really united. Though the horse and the ass do not differ more in figure than the Cow and the bison, the former are distinct animals, their breed being marked with sterility; while the latter are of the same kind, their breed is fruitful, and a race of creatures is produced in which the hump belonging to the bison in a short time entirely disappears. It is evident therefore, that the differences between the Cow, the urus and the bison, are merely accidental. Nature, which has given horns to some Cows, and denied them to others, may also, in her caprice, have bestowed a hump on the bison, or enlarged the size of the urus.

The Cow is found, in some one or other of it's varieties, in almost every part of the world; and, in short, the variations which are every where so perceptible, as has been previously observed, arise either from climate or food, the cultivation of man, or the caprice of nature. The wild Cow and the tame; the animal peculiar to Europe; and that of Asia, Africa, and America; the bonafus and the urus; the bison and the zebu; are all one and the same: they generate among each other; and, in the course of a few generations, the original discriminations become extinct. Of all animals, therefore, man alone excepted, the Cow seems to be
most

most extensively propagated; it's nature appears equally capable of the extremes of heat and cold; it inhabits the frozen fields of Iceland, as well as the burning deserts of Lybia; it seems to be an ancient denizen of every climate; and is found domestic and tame in such countries as have been civilized, but savage and wild in those regions which are less populous and refined. In a state of nature, it is capable of defending itself against the most powerful enemy of the forest; and is subordinate to man alone, whose power it has experienced, and of whose aid it seems eventually to stand in need. In a domestic state, it is mild and tractable; and, though incapable of shewing any great degree of attachment to it's feeders, is nevertheless sensible of their caresses, and grateful for their kindness. However wild calves which are taken from their dams may appear in a savage state, either in Africa or Asia, they soon become patient, humble, and familiar; and, while other animals preserve their natural propensities with inflexible perseverance, these in all respects accord with the desires and conveniences of mankind.

Cows usually receive the males from the beginning of April till the end of July, and go nine months with young: but the season of copulation may be altered by human industry; for, by a particular method of management, veal is procured at every season of the year.

In this country, the ox is the only horned animal which applies it's strength to the service of mankind: and it is certain that, in many cases, oxen are preferable in the draught to horses; their food and harness are cheaper; their frame is less delicate and obnoxious to disease or injury; and, when age puts an end to their labour, their flesh is still equally valuable, an old working ox being as good food, and fattening as well, as a young one.

Every part of this animal may be applied to some beneficial purpose; and each has it's particular uses in commerce, manufactures, and medicine. Boots, shoes, and many other conveniences of life, are produced from it's hide. Vellum is made of calves-skins; and gold-beater's skin is formed either of a thin vellum, or the finer parts of the guts of the ox. The hair, mixed with lime, is a very necessary article in building. Of the horns, combs, handles of knives, boxes, buttons, drinking-vessels, and many other useful articles, are made. In medicine, the horns are also used as alexipharmics or antidotes against poison, the plague, or the small pox; and they are said to possess the same virtues as the oriental bezoar. Carpenters glue is made of the chips of the hoofs and the parings of the raw hides. The bones are used by mechanics as a substitute for ivory, by which means they are enabled to sell many neat conveniences at a cheap rate. From the feet is procured an oil which answers many useful purposes; and the bones, when calcined, afford a fit substance for tests, for the use of the refiner in the smelting-trade. The blood is said to be an excellent manure for fruit-trees, and forms the basis of that colour to which we give the name of Prussian blue. Our artificial light is in a great measure derived from the fat and suet of this animal; the gall, liver, spleen, and urine, have their respective uses in the materia medica; and the importance of butter, cheese, and milk, are too obvious to need insisting on.

The flesh of the ox is extremely nutritious, and yields a very strong aliment; and those who live

chiefly on this food are in general strong, vigorous, and healthy: but it should be tender and well fed, otherwise it proves hard of digestion; however, it is probably at all times better adapted to the laborious and the active, than the sedentary and the indolent. Bull-beef contains a great deal of volatile salt and oil; but being generally hard, tough, and dry, it is therefore seldom used. It is said, indeed, that when a bull is first baited, and then killed, the flesh becomes more proper food; but this practice is in itself so inhuman and barbarous, that it were devoutly to be wished that it was either totally exploded, or at least, from a voluntary refinement of manners, universally relinquished.

The flesh of the Cow is inferior to that of the ox; but if she has been well fed, and is young, the difference is not very easily perceived. Veal is nourishing, well tasted, and easy of digestion; for which reason it is very proper for delicate constitutions, and those who have not opportunities for regular exercise. The fatteners of veal for the London markets suffer the calves to lick salts, chalk, and such other substances, in order to communicate a superior whiteness to their flesh: but what it thereby gains in colour, it certainly loses in flavour; and, though more tempting to the eye, it is unquestionably less grateful to the palate, as well as less wholesome and nutritive.

The following varieties of the Cow kind, properly so called, are the most remarkable.

Cow, WILD. This animal proves to be the urus, the bonafus, and the bison, of the ancients. It is met with, in small numbers, in the marshy forests of Poland, in the Carpathian Mountains, in Lithuania, and near Mount Caucasus in Asia. Some authors have mentioned a species of wild Cow found on the continent of Africa; but ancient and ignorant travellers are little to be relied on, it having long since been discovered that the wild ox of Leo is the same with the gnou, an animal of a very different class. Indeed, the torrid zone forbids a scrutiny into several species, which would, perhaps, afford much satisfaction to an inquisitive naturalist.

Cow, GREAT INDIAN. This variety is of a reddish colour; has short horns bending close to the neck; and a vast lump on the shoulders, which is extremely fat, and esteemed very delicate and rich food: this lump, being merely accidental, disappears, in the course of a few descents, in a mingled breed. The Great Indian Cow is also common in Madagascar, where it grows to an enormous size.

Cow, SMALL INDIAN. This animal, which is very small, has a lump on the shoulders, and horns which project a little forwards. It is the *bos Indicus* of Linnæus, and the zebu of Buffon. In Surat there is a very minute breed, not larger than a dog, which nevertheless has a very fierce look.

Cow, ABYSSINIAN. In this country, and in the isle of Madagascar, a curious variety of the Cow is met with, which has a hump on the back, with horns only attached to the skin, and entirely pendulous.

Cow, LANT. This animal, as described by Leo Africanus, has smaller legs and neater horns than the common breed; the hair is white; the hoofs are of a jetty blackness; and of the hide targets are made which are impenetrable by a musquet-ball. This species is so amazingly swift, as even to outrun the Barbary horse; that courser which

which can overtake it being usually valued at a thousand ducats, or a hundred camels.

COW, AMERICAN. This variety has a vast bunch on the shoulders; and short black rounded horns, with large intervals between their bases. The fore-parts of the body are thick and strong, but the hinder ones are slender and weak; and the head and hunch are covered with hair of a dull rust-colour, which is at times so very long, as to give the animal a shapeless appearance, and obstruct its sight. During winter the whole body is cloathed in the same manner; but in summer the hind-part of the body is naked, wrinkled, and dusky. The tail is about a foot long, and naked, except a tuft of black hairs at the extremity. This animal inhabits Mexico, and the interior parts of North America: it is fond of marshy places, and is extremely fierce and dangerous; but, if taken young, is capable of being tamed. It seems to be the same with the bison and other cattle in a wild state, and to be common to Europe and America. See **BISON**.

COWRIES. A genus of shells of the cyprea class. See **CYPREA**.

COXOLITLI. A Brazilian bird of the size of the peacock, and of a brownish colour. Though it differs from the jacupema in some particulars, it seems to be of the same species.

COYOLCOZQUE. An American bird, described by Hernander and Nieremberg as a species of quail or partridge. The colour of its back is a mixture of white and yellow; its breast and belly are wholly yellow; its head and neck are ornamented with spots of black and white; its eyes are black; and its legs are yellow. It is very common in many parts of Spanish America, and is esteemed excellent food.

COZCACOAUTLI. The Mexican name of a large bird of the eagle kind described by Nieremberg; and called by some *regina aurum*, from the power it possesses of flying against the wind.

COQUILAQUIL. The Philippine name of a kind of parrot common in these islands; and distinguished from the other species by being very large, and entirely of a green colour.

CRAB. A genus of aptera in the class of insects in the Linnæan system, comprehending no less than eighty-seven species; the distinguishing characters of which are, that it has generally eight or ten feet, two of them being clawed; the two eyes are remote, and for the most part pedunculate, elongated, and moveable; the two feelers are cheliferous; and the tail is articulated. To this genus belong the Crabs properly so called, crayfish, shrimps, lobsters, &c.

The Crab is found equally in fresh and salt water, and as well on land as in the ocean. It differs essentially from the lobster in its conformation, but entirely resembles it in its habits. The body is in general roundish; the back is a little arched; and the tail turns up under it, lying in a cavity designed for that purpose. These fish are of different sizes, some weighing several pounds, and others only a few ounces. The male is distinguished from the female in having a broader tail, like that of the lobster; and it likewise resembles that fish with respect to the number of its claws, which are two; and its legs, which are eight.

As Crabs, however, are found on land as well as in the water, the peculiarities of their situation produce the following difference in their habitudes.

Land-Crabs are found in most of the warmer regions of Europe, and in great abundance in all the tropical climates in Africa and America. They are of various kinds, and endued with different properties: some are salubrious, delicious, and nourishing food; others are poisonous and malignant to a very high degree; some are not above half an inch broad, others are a foot in diameter; some are of a dirty brown colour, and others are mottled in a very beautiful manner.

The coasts of the British isles afford a considerable number of species, the more remarkable of which will be described: but the most extraordinary animals of the kind are the Violet-Crab of the Caribbees, and the Soldier-Crab.

CRAB, VIOLET, OF THE CARIBBEES. This animal resembles two hands cut in the middle, and united together, for each side bears some resemblance to four fingers; and the two nippers or claws represent the thumbs. All the rest of the body is covered with a shell as large as a man's hand, and bunched in the middle; on the fore-part of which there are two oblong eyes, each of the size of a grain of barley, as transparent as crystal, and as hard as horn. A little below these, the mouth is placed, covered with a sort of barbs, under which are two broad sharp teeth, as white as snow, placed not much unlike the blades of a pair of scissors: with these teeth it can easily masticate leaves, fruits, and rotten wood, which constitute its usual food. However, the principal instruments for cutting, as well as seizing its food, are its nippers, which catch such sure hold, that the creature sooner loses its limbs than its grasp; and is often seen retreating after having left one of its claws fixed in its enemy, which claw will frequently retain its hold upwards of a minute after the Crab has made its escape. In fact, this animal loses little by leaving either a leg or an arm, for they soon grow again, and then the creature is seen as perfect as before. This, however, is the least singular part of the history of these animals; and the following circumstances, were they not well authenticated, might not only stagger the belief of an ordinary reader, but bring the veracity of naturalists in question.

They not only live in a kind of orderly societies in their mountainous retreats, but annually descend to the sea-side, in a regular army composed of millions. As they multiply in vast numbers, they generally begin their expedition about the month of April or May; and then fall forth in myriads from the stumps of hollow trees, the cliffs of rocks, and holes dug by themselves beneath the surface of the earth. At such times the whole ground to a considerable distance is so covered with these adventurers, that it is almost impossible to advance a single step without treading on some of them. The sea being the place of their rendezvous, to it they direct their march with the utmost precision; they neither turn to the right nor left, whatever obstacles intervene; and, if they even meet with a house, they attempt to scale the walls, rather than suffer their ranks to be thus broken.

But, though the above be the general order of their route, on other occasions they are obliged to conform to the face of the country; and, if it be intersected by rivers, they then wind along the course of the stream. The procession sets forward from the mountains with all the regularity of an army under the guidance of an experienced general. They are commonly divided into three battalions; of which the foremost consists of the strongest and

boldest males, which march forward like pioneers, in order to clear the route, and oppose threatening dangers: these are often obliged to halt for want of rain, and to take shelter in the most convenient spots, till an alteration of the weather takes place. The main body of the army is composed of females, who never leave the mountains till the rain has set in for some time; and then they descend in regular battalia, formed into columns of fifty paces broad, and three miles deep, and so close, that very little of the ground can be discovered. Three or four days afterwards, the rear-guard follows; a straggling, undisciplined tribe, consisting of a mixture of males and females, neither so robust nor numerous as the two former columns. The night season is chiefly chosen for their march; but, should it happen to rain in the day-time, they do not fail to avail themselves of that circumstance, moving forward with a slow, uniform pace. When the sun shines, so as to warm the surface of the ground, they make a general halt, and patiently wait the cool of the evening. When frightened, they march backward in a disorderly manner, holding up their nippers, with which they frequently lacerate the flesh of their adversaries, and sometimes leave these weapons, as we have already observed, in the wounds inflicted by them. They even try to intimidate their enemies, by clattering their nippers together, as if to threaten those who presume to disturb them. But though they thus make a shew of being formidable to man, they are far from living in amity with each other; for no sooner is one of their number maimed by accident, or worn out with fatigue, than the rest fall on it, devour it on the spot, and then pursue their journey.

After having encountered a thousand dangers, and continued their march sometimes for two or three months, they at length arrive at their destined port, where they prepare to cast their spawn. The *fœtus*, if it may be so called, is yet within their bodies, and not placed under their tails, as is usual in animals of this kind; for these creatures wait till they can have the benefit of sea-water to assist their delivery. For this purpose, they no sooner reach the shore, than they eagerly advance to the water's edge, and suffer the waves to wash their bodies two or three times. This, however, seems only preparatory to their bringing their spawn to maturity; for they presently withdraw to the land, in order to search for a lodging-place; and, in the mean time, their spawn grows larger, is excluded out of their bodies, and sticks to the barbs under their tails; and these protuberances soon become as large as hens eggs, and exactly resemble the roes of herrings. In this advanced state of pregnancy, they once more seek the shore, and shake off their spawn into the water. At this time whole shoals of hungry fish are impatiently waiting for this annual supply; the sea appears discoloured with them for a considerable space; and above two-thirds of the Crabs eggs are immediately devoured by these rapacious invaders. Those eggs, however, which escape them, are hatched under the sand; and in a very short time millions of these little animals are seen to quit the shore, and to advance in slow procession to the mountains.

The old ones having thus discharged the grand duty of irrational nature, set out on their return; but they are now become so very feeble and emaciated, that they can hardly creep along, and even their flesh assumes a different colour. The generality of them, therefore, are obliged to continue

in the flat parts of the country till their strength is recruited, making holes for themselves in the earth, which they cover with leaves and dirt, in order to prevent the admission of air. In these retreats they throw off their old shells, which they leave in a manner entire, the places where they opened on their bellies being unseen. At that time they are quite naked, and almost without motion, for six days together; after which they become so fat, as to be very delicious food; and have under their stomachs four large white stones, which gradually decrease as their shells harden; and, when arrived at perfection, are no longer perceptible. The animals then make their way backward with a slow pace, and generally perform their journey in the space of six weeks.

When the Crab is reinstated in its mountainous retreat, it is almost impossible to dislodge it; for, subsisting only on vegetables, it seldom ventures abroad; and its habitation being in general inaccessible, it remains there during a great part of the season in perfect security; and at those times only, when impelled by the desire of bringing forth its young it is forced to descend into the flat country, does it fall under the power of man. At such seasons the natives wait for the descent of these creatures with eager expectation, and destroy numbers of them; but, disregarding their bodies, they only search for that small quantity of spawn which lies on each side of their stomachs within their shells.

These animals, indeed, are more valuable on their return, after having shed their exuviae; for, being covered with skins resembling soft parchment, almost all their parts, except their stomachs, are edible. They are taken in their holes by means of instruments adapted to that purpose; and are also traced by night, when on their journeys, with flambeaux. The instant they are attacked, they throw themselves on their backs, and with their claws pinch their enemies most unmercifully. But dextrous Crab-catchers seize them by their hinder legs, in such a manner that their nippers cannot hurt them, and thus throw them into their bags.

The natives derive considerable advantage from these creatures; and slaves are often entirely subsisted on them. In Jamaica, where they are found in abundance, they are regarded as a very great delicacy. Still, however, the eating of them is attended with some danger; for, even of this kind, many prove poisonous, which quality they are supposed to derive from feeding on the machineel apple; and, whenever they are found under that noxious plant, they are always rejected.

CRAB, SOLDIER. This creature, when divested of its shell, somewhat resembles the lobster. It is usually about four inches long; and has no shell behind, but is covered down to the very tail with a rough skin terminating in a point: it is, however, armed with strong hard nippers before, the only crustaceous parts which it contains. But, what nature has denied this animal, it has taken care to supply by art; and, taking possession of the deserted shell of some other animal, resides in it till its increased size requires a larger covering.

This species is found in the West India islands; and, like the Violet-Crab, annually descends from the mountains to the sea-shore, in order to deposit its spawn, and provide itself with a new shell. This seems to be a very active period in the life of this animal; and probably its first care is to provide
for

for it's offspring before it attends to it's own wants; and, from the number of small shells it is at times seen to examine, it is supposed that it deposits it's spawn in them, where it remains in security till the time of exclusion. But, however this may be, the Soldier is by no means unmindful of itself, for, having outgrown it's old shell, a part of it's naked body is perceptible; and therefore a shell must be found big enough to cover the whole, and yet not so very large as to be unmanageable and unwieldy. These purposes are by no means effected by a slight survey; for the little animal is seen busily perambulating the shore, along that line of pebbles and shells which is formed by the farthest wave; still, however, dragging it's old incommodious habitation at it's tail, and seemingly unwilling to relinquish it till it has discovered one more preferable. It accordingly stops at one shell, turns it, and passes by; goes on to another, which it surveys, and then disengages it's tail from it's old habitation, in order to make trial of the new; but should this also prove incommodious, it then quickly returns to it's old shell again: and in this manner it continues changing, till at last it suits itself with one light, roomy, and commodious, to which it adheres, though it may sometimes be so very large as to conceal every part of it's body.

These animals, however, do not accomplish their respective ends without much difficulty, and sometimes a severe combat; for, when two of them happen to fix on a shell at the same time which seems suitable to each of them, they both endeavour to take possession of it; striking with their claws, and pinching each other, till the weakest is obliged to yield up the object of dispute. On this the victor immediately enters, and parades in his new acquisition backwards and forwards on the strand, in the view of his discomfited antagonist.

The Soldier Crab, when laid hold of, sends forth a feeble cry, and endeavours to seize it's invader with it's nippers; which being effected, it will sooner die than quit it's grasp. The wound thereby inflicted is very painful and difficult of cure; for which reason, and as it's flesh is not much esteemed, it is generally permitted to return to it's old retreat in the mountains without molestation.

CRAB, WHITE. This is likewise a land Crab, and a native of the Caribbees. It has nearly the same properties as the violet Crab, but grows to such a superior size, that one of them is reckoned worth three of the violet.

CRAB, INDIAN LAND. The body of this animal is of a roundish figure, a little compressed, and about the size of an orange. It has eight legs, each five inches long, with four joints, the lower parts being covered with long hairs; the mouth is large, and hairy on it's sides, as well as the rest of the body. Of the great legs or claws, the right is large, and the left considerably less; the right being eight inches long and two broad, while the left is scarcely so long by one-third. The eyes are either extremely prominent, or sunk, according to the pleasure of the animal; and near the mouth there are two short feelers, which the creature possesses the faculty of extending or concealing.

All Crabs of this sort have the following property; namely, that if they seize any thing with their nippers, they sooner quit their limbs than their hold: however, as observed in the description of the Violet-Crab, this loss is soon repaired by a restoration of the part.

CRAB, SEA, EAST INDIAN. This species is about

a span long, and of a very singular colour, the shell being in general speckled with yellow spots, except where three purple ones appear inclosed in a circle of white. The claws next the body are yellowish, white in the middle, and of a deep purple at the extremities; and the eyes project almost an inch from the head.

CRAB, SOUTH AMERICAN. The natives call this species *Guaia Apará*. It is beautifully variegated, one end of the body being terminated with a circle, and the other with a right line; and it grows to about three inches in breadth, and two and a half in length. The fore-part of the shell is of a dark brown colour, variegated with whitish spots; and the hinder part is of a whitish yellow, adorned with brown streaks running in a longitudinal direction. It has eight roundish feet or claws, with four joints, of a whitish yellow colour; and also two great claws or nippers, each two inches and a half long, and half an inch broad; their upper parts being armed and dentated like the comb of a cock. When swimming, it causes a kind of bubbling in the water, which resembles the effervescence occasioned by fire.

CRAB, PEA. The thorax of this animal is smooth, rounded, and undivided; and the tail is as large as the body, which is commonly about the size of a pea. It inhabits the mussel; and is undeservedly characterized as being poisonous, for the inflation, after feeding on mussels, is wholly constitutional; and for one that receives any injury from eating them, multitudes remain unaffected.

CRAB, LONG-HORNED. This species has a smooth round body, large claws, and very long horns. It is a very minute animal, being less than the Pea-Crab; and is commonly found on the British coasts.

CRAB, COMMON. This class has three indentations on the front, five serrated teeth on each side, ovated claws, and subulated hind-feet. It is of a dirty green colour; and, when boiled, turns red. It lurks under sea-weeds, or burrows in the sand, and is found on all the British shores.

CRAB, PURIFIER. The thorax of this animal has a quintuple dentation on each side; the front is also indented; the body is subcordated; the claws are angulated; and the two last joints of the hind-legs are ovated and ciliated. This species generally inhabits the depths of the sea, where it feeds on dead animals; and is thence called the Purifier, as occasioning the removal of putrid substances.

CRAB, BLACK-CLAWED. The body of this species is smooth; the thorax is crenated; the hind-feet are subulated; and the claws are smooth, with black tips. It frequents rocky coasts; is reckoned very delicious food; and the tips of the claws are used in medicine, as an absorbent of acidities in the stomach and bowels.

CRAB, VELVET. The thorax of this class is quinquedentated; the body is overspread with a short brown velvet-like down; the claws are covered with minute tubercles; and the hind-legs are broadly ovated. It is found on the coasts of the isle of Anglesea.

CRAB, BRISTLY. This species has a hairy thorax, and on each side a slight quintuple dentation; the claws are ovated, somewhat echinated, and hairy; and the feet are bristly and subulated. It is a small animal of a reddish colour, and lurks under stones on the sea-shore.

CRAB, LARGE-CLAWED. The front of this creature

creature is tridentated; the thorax is undivided; the claws are very large, depressed, and considerably ciliated on the outside; three of the legs are subulated on each side; the antennæ are very long, and reverted when not in use; and the body is about the size of a horse-bean. It is found on the coasts of the Hebrides.

CRAB, LONG-CLAWED. This species has a bifurcated front, a spine at the corner of each eye, and another on each side of the thorax towards the tail; the body is ovated and smooth; the antennæ are as long as the body; the claws are double the length of the body; and the feet are subulated.

CRAB, HORRID. This class has a projecting bifurcated snout; the body is cordiform; and the claws and legs are covered with long and very sharp spines. This animal, which is pretty large, is found among rocks on the eastern coasts of Scotland; and is also common in Norway.

CRAB, SPIDER. The front of this animal is bifid; the thorax is bristly; the body is cordiform and tuberculated; the claws are long and ovated; and the legs are long, slender, and subulated.

CRAB, SLENDER-LEGGED. This species has a bifid snout; the body is small, tuberculated, and shaped like a heart; the claws are long; and the legs are of a very disproportionate size, slender, and hairy.

CRAB-LICE. A very odious and troublesome species of vermin, which stick so fast in the human skin, that they are with difficulty dislodged. When viewed with a glass, they bear a strong resemblance to the small crab-fish; whence they have obtained their popular name. They are distinguished by some authors under the different appellations of *Plutulæ*, *Morpiones*, *Petolæ*, and *Pessolæ*; and chiefly infest the arm-pits and privities of those who indulge in promiscuous amours.

These vermin are by some supposed to prognosticate a speedy dissolution to those whom they relinquish without the help of medicine. When touched with a rag wetted in the milk of sublimate, they are at once destroyed.

CRAKE. A bird of the gallinule or rail kind; and supposed by many to be the same with the water-rail, an error originating from a want of due attention to their different characters and natures. The bill of this bird is short, strong, thick, and exactly formed like that of the water-hen; though it never frequents watery places, but is always found among corn, grass, broom, or furze. The feathers on the crown of the head, the hind-part of the neck, and the back, are black edged with bay; the coverts of the wings are of the same colour, but without any spots; the tail is short, and of a deep bay; the belly is white; and the legs are cinereous.

This bird, which is migratory, quits this kingdom before the approach of winter, but has a strong aversion to the trouble of flying. The legs, which are remarkably long for the size of the bird, hang down while it is on the wing; and, in general, it seems rather inclined to trust to swiftness of foot than rapidity of flight. It lays from twelve to twenty eggs, of a dull white colour, marked with a few yellow spots; but, notwithstanding this very great number, the breed is by no means plentiful in England. Its note, which is very singular, resembles the word *Crex*, often repeated.

In Scotland and Ireland, Crakes are very numerous: they arrive there about the middle or end of April, when they are very lean; but, before they leave these islands, they become plump and fat, and generally weigh upwards of eight ounces.

CRAMP-FISH. The English name of the torpedo, or electric ray; a fish possessing the singular power of benumbing the fingers of those who touch it, even through the medium of a rod.

CRAMPER. An appellation given by some authors to the *brama sexatilis*, or *pagrus Indicus*; a large and broad sea-fish caught among the rocks on the shores of many parts of the East Indies.

CRANE. This bird, in the Linnæan system of zoology, forms a species of the *ardea*, or heron; the characteristic of which is, that the head is cristated, and almost bare of feathers.

Birds of the Crane kind, (which, in an extensive sense, comprehends a very numerous class) being habituated to marshy places, may be known either by the length of their legs, or their scaly coverings: they are in general very thinly feathered half way up their thighs, and all of them above their knees. In most birds of this class the bill is very remarkable; it is generally longer than that of any other bird; and at the point is possessed of extreme sensibility, being furnished with nerves for the better feeling of its food under slime in marshy places where it cannot possibly be discerned. Some of these birds are furnished with every convenience; having long legs for wading, long necks for stooping, and long bills for searching. They lead a life of precarious liberty, in fens and marshes, and on the margins of seas or lakes: they subsist on fish and insects; build their nests in a very simple manner; and are exceeded in cunning and fecundity by almost every other class of animals.

CRANE, COMMON. Various and contradictory are the accounts respecting the size and dimensions of this bird. According to Willughby and Pennant, the Crane is from five to six feet long from the tip of the bill to the tail; while other naturalists assert that it is above five feet high; and some others, that it is even equal in height to a man. Brisson seems to give this bird its real dimensions, when he describes it as something less than the brown stork, which is about three feet high, and four from the tip of the bill to the tail. Still, however, the numerous testimonies of its superior size are not to be totally rejected; and perhaps that bird from which Brisson took his dimensions was one of the smallest kind. According to this author, the Crane is exactly three feet four inches from the tip to the tail, and four feet from the head to the toe. It is slender in proportion to its height, and has a long neck and long legs. The top of the head is covered with black bristles; and the back part of it, which is bald and red, is a sufficient distinction between this and the stork, to which it is very nearly allied in size and conformation. The plumage is ash-coloured; and two large tufts of feathers spring from the pinion of each wing bearing some resemblance to hair, and finely curled at the extremities, which the Crane can erect or depress at pleasure. Gesner informs us that, in his time, these feathers were often set in gold, and worn in the caps of persons of distinction by way of ornament.

Such is the description of a bird concerning which so many fables have been invented and propagated. The Crane is a bird with which all the ancient writers were familiar; and, in depicting it, they have not failed to blend imagination with history. From the policy of these birds, they tell us, we are to conceive an idea of the most perfect republic among mankind; from their tenderness to their aged parents, whom they take care to nourish,

rish; cherish, and support when flying, we are to learn lessons of filial piety; but particularly, from their conduct in fighting with the pigmies of Ethiopia, we are to receive our maxims in the art of war.

In early times, the history of nature fell to the lot of poets only, and certainly none could describe it better: but it is a part of their province to embellish their descriptions with adscititious ornaments; and, when this captivating science was cultivated by a more cool and sober class of authors, they were obliged to take the accounts of things as they found them; and, in the present instance, fable was handed down to posterity blended with a certain portion of truth.

There is unquestionably some degree of reality in these relations; but they have been greatly exaggerated by fancy. Cranes are certainly very social birds, being seldom seen alone: they usually fly or sit in flocks of fifty or sixty together; and, while some of them feed, others watch as sentinels on duty. The fable of their supporting their aged parents may probably have originated from their strict connubial affection; and as to their fighting with pigmies, it may not be improbable that they have at times boldly withstood such monkeys as attempted to rob their nests; for, in these cases, as Cranes live on vegetables, it is not likely that they should be the first aggressors.

The Crane is a vagrant, social bird, and is known in every country of Europe except our own. 'There is no part of the world,' says Bellonius, 'where the fields are cultivated, that the Cranes do not come in with the husbandman for a share of the harvest. As birds of passage, they are observed to depart and return regularly at those seasons when their provision invites or repels them. They generally quit Europe about the latter end of autumn, and return at the beginning of summer. In the interior parts of the continent, they are seen crossing the country in flocks of fifty or a hundred, and making from the northern regions towards the southern. In these migrations, however, they are not so resolutely bent on expedition, but that, if a field of corn presents itself in their way, they will make a halt to regale on it. On such occasions they do incredible damage; and as their depredations are generally performed during the night, when the husbandman rises in the morning, with sorrow he perceives his fields laid waste by an enemy whose swiftness his vengeance cannot overtake.'

Cranes were formerly known in England, and held in great estimation for the delicacy of their flesh; and there was also a penalty laid on those who destroyed their eggs: but, at present, this country is too populous, as well as too well cultivated; and though our fields may offer them abundance, their hazard would certainly be greater than their enjoyment. Nor, indeed, does it appear that we are not greater gainers by their absence than we should be by their company; for however delicious their flesh might once have been, when, as Plutarch informs us, Cranes were blinded, and kept in coops, in order to be fattened for the tables of the great in Rome; or, when they were brought up, stuffed with mint and rue, to the tables of our nobles at home; they are now justly considered over the whole continent of Europe as wretched food, their flesh being fibrous and dry, and only fit for the stomachs of the robust and the laborious.

The favourite abodes of Cranes are the arctic

regions: they descend into the more southern parts of Europe rather as visitants than inhabitants; yet it is not well ascertained in what manner they portion out their time with respect to the different parts of the world. The migrations of the field-fare and the thrush are obvious and well known; they proceed northward or southward in one undeviating course; and, when their food fails them here, they have but one region to repair to. But Cranes change their places like wanderers. Gesner assures us, that these birds begin to quit Germany about the middle of September, and finally leave it about the middle of October; from whence they are seen flying southward by thousands: and Rhedi tells us, that they arrive in Tuscany a very short time after, where they tear up the newly-sown grain, and do incredible mischief. During the severity of the winter, it is probable that they approach nearer the line; and, about the middle of February, they again visit Italy, anticipating the spring, and affording the natives a prelude of that delightful season.

The heights to which these birds ascend in their migrations is truly astonishing; and their notes, which are the loudest of all other birds, are heard in the clouds at a distance wholly imperceptible. As they are lightly framed in proportion to their size, and expand their wings to a great extent, they are capable of floating at the greatest heights, where the air is most pure; and thus secure their safety by being entirely out of the reach of man.

Though Cranes, during their aerial voyages, are altogether imperceptible to human eyes, they have the most distinct vision of every object below them: they direct their flight by their cries; and incite each other to descend whenever a fit opportunity for depredation presents itself. Their voice, as before observed, is the loudest of all the feathered tribe; and its peculiar clangor arises from the extraordinary length and contortions of their wind-pipes. In quadrupeds, the wind-pipe is short; and the glottis, or cartilages which form the voice, are situated at that end next the mouth: but in water-fowl, the wind-pipe is longer, and the cartilages which form the voice are placed at the other end, which lies down in the belly. Cranes, therefore, have more sonorous voices, in proportion to their size, than any other animals; for their note, when formed below, is reverberated through all the revolutions of the wind-pipe till it reaches the air.

As these birds rise but heavily, they are extremely shy, and seldom suffer mankind to approach them. Their depredations are usually committed during the darkest nights, when they sometimes visit a field of corn, and trample it down as if it had been crossed by an army; and if, on such occasions, they are invaded on any side, the Crane that first perceives the danger is sure to sound the alarm, and all of them are instantaneously on the wing. Sometimes they make choice of an extensive, solitary marsh, where they range themselves for a whole day as if in the act of deliberation; and, after finding it impracticable to procure that species of food which is most congenial to their appetites, they wade the marshes in search of insects, and other nourishment which can be obtained in security. Corn, indeed, is their favourite food; but hardly any thing comes amiss to them. Rhedi, who dissected several of these birds, found one of their stomachs filled with the herb dandelion; that of another with beans; a third with a large quantity

tity of clover; a fourth and fifth with earth-worms and beetles; in some more, he found lizards and sea-fish; and, in others, snails, grass, and pebbles. From hence we may conclude, that these birds are easily supplied; and that they are destructive to corn-fields only occasionally.

The Crane is in general a peaceful bird, both in it's own society, and with respect to the rest of the feathered kind. Though so very large, and apparently endued with a considerable share of strength, a falcon pursues, and often disables it. Those who are fond of the amusement of hawking, let fly several hawks together against the Crane, which endeavours to avoid them by flying up perpendicularly, till the air becomes too fine and rare to support it. The hawks, however, still keep pace with it; and, though less adapted than the Crane for floating in so thin a medium, being possessed of greater rapidity, they gain the ascendancy. Both parties often rise out of sight; but shortly after begin to appear again, tumbling perpendicularly together, with great animosity on the side of the hawks, and with loud screamings on that of the Crane. Thus driven to extremity, and unable to fly, the poor Crane throws itself down on it's back, and in that situation makes a desperate resistance, till the sportsman coming up, puts a final period to the contest.

In ages less refined than the present, the barbarous diversion of breeding up Cranes to be thus baited, was much practised, the young ones being taken from the nest for this savage purpose. The Crane is certainly an animal very easily tamed; and, if we may credit Albertus Magnus, has a particular affection for man. The female, which may be distinguished from the male by being covered with feathers in those parts where the other is bald, never lays more than two eggs at a time; which are like those of a goose, but of a blueish colour. The young are soon capable of flying; and then the parents, after shewing them where their food is most easily to be found, forsake them for ever. Though yet unfledged, they run with such amazing swiftness, as to be with difficulty overtaken by any of the human species. As they advance in years, their plumage becomes gradually darker and darker; and, as a proof of their longevity, Aldrovandus assures us, that a friend of his kept one of them in a tame state for upwards of forty years.

The commonalty of every country, even at this period, pay a compassionate kind of regard to the Crane, the ancient prejudices in it's favour perhaps still continuing to operate. In some kingdoms, it is considered as a heinous offence to kill one of these birds; and though the legislature decline punishing the offence, the vulgar fail not to resent the injury. It is, in some measure, considered as the prophet of the season; and, according to it's approach or delay, they regulate the periods of their rural œconomy: if their favourite bird makes an early appearance, they expect a plentiful summer; but, if it is tardy in it's visit, they then prepare for an unpropitious one.

CRANE, BALEARIC, the crowned African Crane of Edwards. This species resembles the common Crane in it's size and figure; but the bill is shorter, and the plumage of a dark greenish grey. The most striking parts, however, of this bird's figure, are the head and throat. On the head there is a thick round crest, composed of bristles spreading on every side, and resembling rays diverging dif-

ferent ways; the longest of which rays is about three inches and a half; and they are all topped with a kind of black tassels, which have a very beautiful effect. The sides of the head are bare, whitish, and edged with red; and a kind of wattle hangs beneath the throat, resembling that of a cock, except that it is undivided. The eyes are large and prominent; the pupils are black, with gold-coloured irides; and on each chap there is the appearance of a white line, terminating in one that is red on the upper part.

This bird, which is a native of the coast of Africa and the Cape de Verd islands, feeds on grass and seeds. As it runs, it extends it's wings, and moves very swiftly; but it's usual pace is slow and majestic.

CRANE, HOOPING. The length of this bird, from the tip of the bill to the end of the claws, is five feet seven inches; the bone which extends from the knee to the foot is eleven inches; and the thigh is bare five inches above the knee: the middlemost toe is five inches long without the claw; and the bill, which is toothed at the point, is six inches long. The nostrils are placed, in the channels on each side, at about a third part of the length from the head; and the chaps are of a yellowish brown colour at their extremities, and a little dusky in the middle. The top of the head is covered with a reddish skin; behind which there is a triangular spot, with one of the points backwards. The sides of the head, the throat, neck, body, and tail, are white; but the nine exterior quills of the wings are black; the tenth is black and white; and the rest are entirely white. The outer and middle toes are united by a web as far as the first joint; and the legs and feet are covered with black scales.

The Hooping Crane is generally considered as a bird of passage: it is, however, observed, about the beginning of spring, near the mouths of the rivers in Florida.

CRANE, BROWN AND ASH-COLOURED. The bill of this bird is four inches long; and the wings, when closed, are eighteen inches. The leg-bone, from the knee to the foot, is seven inches long; and the middle toe is above three inches. The bill, which is formed like that of the hooping Crane, is of a dusky colour, except the point of the lower chap, which is of a light flesh. The top of the head, from the bill to the ear-holes, is covered with a reddish skin, thinly beset with black hairs; but the sides of the head beneath the eyes, and the inferior side of the throat, are white. The hinder parts of the head and neck all round are cinereous, and gradually become brown at the rise of the breast. The beginning of the back, and the covert-feathers of the wings, are of a light reddish brown, with tips of a darker hue. The greater quills are a blackish brown, with white shafts; and those which fall next the back are brown, their points extending beyond the prime-quills when the wings are closed. The tail is of a brownish ash-colour; and the breast changes from brown to cinereous, which colour reaches to the covert-feathers of the tail, where they are whitish. The lower part of the back, the rump, and the upper coverts of the tail, are of a light ash; and the legs, feet, and claws, are entirely black, the former being bare above the knees. This bird was first brought from Hudson's Bay, to which it resorts in the summer season.

CRANE, NUMIDIAN. This bird is vulgarly called the buffoon-bird; and, by the French, *démouille*,

felle, or lady, because it is supposed to imitate the gestures and dances of the Bohemian ladies; for no sooner does the Numidian Crane perceive itself noticed, than it begins to dance, and to exhibit a variety of gesticulations: but whether these antic tricks proceed from vanity or fear, is rather doubtful, though we are inclined to adopt the latter cause.

The Numidian Crane is furnished with appendices at the head three inches and a half in length, composed of white feathers consisting of long fibres; but the rest of the plumage is of a leaden grey colour, except some large feathers in the wings which are darker, and a few about the head and neck. Some of these birds have plumes of feathers erected like a crest on the top of the head; and from the corner of each eye a streak of white feathers passes under the appendages which form the great feathered ears; and the fore-part of the neck is adorned with black feathers, composed of very fine soft and long fibres hanging down on the stomach, which give the bird a very graceful appearance.

The length of this species, from the tip of the bill to the end of the claws, measures three feet and a half; that of the neck fourteen inches; and, from the thigh-bone to the extremity of the great toe, ten inches. The fore-sides of the legs are covered with large scales; the soles of the feet have the appearance of shagreen leather; and the claws are black.

CRANE-FLY. An appellation given by some authors to the creature vulgarly known by the name of father long-legs, and called by naturalists *tipula terrestris*.

This insect presents the microscopic observer with many curious particulars: but the surprizing contraction of the muscular fibres of its legs is the most remarkable; these being dissected in a drop of water, and placed before the microscope, the fleshy fibres contract and distend themselves in a very curious manner, and continue this motion for several minutes successively; a circumstance, according to the ingenious Leewenhoeck, invariably observed in this insect, and in no other. The intestines of this animal are likewise very wonderfully constructed, consisting of numerous vessels and organs, as plainly perceptible by the assistance of the microscope, as the bowels of larger animals are by the naked eye. The tail, both in the male and female, is also of an amazing construction; that of the female terminating in a sharp point, with which she perforates the ground, in order to deposit her eggs.

CRASSIROSTRÆ. A genus of small birds distinguished by the thickness of their beaks; of which kind are the sparrow, the green-finch, and several others.

CRAVANT. An appellation given by Belloinus, and some other authors, to the barnacle, a small species of wild-goose common on the Lancashire coasts during the winter season.

CRAX. A name given by the ancients to the ortygometra, or daker hen; a bird somewhat larger than the quail, and very common in Ireland, and some of the northern counties of England.

CRAX. The name of a distinct genus of birds of the gallinæ class in the Linnæan system of zoology; the distinguishing characters of which are, that the base of the bill is covered with a case in each mandible; and the head is ornamented with a kind of feathery crown, bending backwards. Of these birds, there are five species.

CRAY-FISH. A species of cancer, or cancer astacus, in the Linnæan system.

The Cray-Fish differs very little from the lobster, except in the smallness of its size. The body is round; and the head is terminated by a pretty broad horn, short and pointed, under which the eyes are placed. On the fore-part of the head there are four horns or feelers, two long and two short, whose ends terminate in hairs. The pinchers, which consist of five joints, are forked, rough, and dentated; and on each side there are four feet, the two first of which towards the pinchers are cloven at the end, and the next two are each furnished with a spur. The upper part of the body is covered with five scaly plates; and there are five fins on the tail.

Cray-Fish are found in almost every river, and even brook, in England; and their flesh is reckoned cooling, moistening, and well adapted to nourish such as labour under atrophies. There are various methods of dressing them: they may be either boiled or fried, and then converted into a variety of dishes; but no parts of them are proper for food, except their claws and tails. Preparations and broths of Cray-Fish not only constitute a pleasant aliment, but likewise answer some medicinal purposes, as possessing a moistening quality, and sheathing up and correcting acrimony. The broth is made from four or five of these fish; which, after having their heads cut off, and their intestines extracted, are bruised and boiled in the broth or flesh of poultry till they become red; after which, the liquor is strained off, and seasoned as the case may require.

Cray-Fish are reckoned to be in season during the summer months; but the delicacy of their flavour depends in a great measure on their food. When they receive proper aliment, their flesh has an agreeable relish; but when they feed on putrid substances, it is thereby often rendered very unpalatable.

In the River Obra, on the borders of Silesia, Cray-Fish are prodigiously numerous; but they possess such a bitter aromatic flavour, as to be scarcely eatable. This taste probably arises from the vast quantities of *calamus aromaticus* growing on the banks of that river, the roots of which these animals devour with greediness. Cray-Fish are likewise very plentiful in the River Don in Muscovy, where they are caught, piled in heaps, and left to putrify; after which the stones called crabs eyes are picked out. Being very fond of human flesh, they flock in great numbers to any carcase accidentally immersed in the water, and seldom leave it while a single particle remains: they also feed on dead frogs, or any other animals which come in their way. In Switzerland, there are some Cray-Fish which are red while alive, and others blueish; and some kinds also which will never become red by boiling, but maintain their original sable hue.

The Cray-Fish discharges its stomach, and, as Geoffrey thinks, its intestines also; which, as they putrify and dissolve, serve the animal for food; and, during the time of the reformation, the old stomach seems to be the first food which the new one digests. It is only at this period that the stones called crabs eyes are to be found: they begin to be formed when the old stomach is destroyed; and are afterwards wrapped up in the new one, till they gradually disappear by a slow decrease.

CREEPER. The English name for a species of *ispida*, which though very dissimilar to the, common

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common king's-fisher both in colour and figure, on account of the structure of its feet, is comprehended under that genus. It is likewise called the certhia, and certhius, by authors; and, in English, the ox-eye. The species are numerous.

CREEPER, COMMON. This bird adheres to the trunks and boughs of trees, and creeps on them like the wood-pecker. It is about the size of a wren; and is furnished with a long, slender, sharp bill, incurvated downwards, by which mark it is distinguished from all other birds. The tongue, which is about the length of the bill, is hard and stiff at the point, and sharp like a goad; the longest feathers of the tail are sharp and stiff, as in pies; and the upper part of the body is dusky, and the lower whitish.

CREEPER, BLACK AND YELLOW. This bird, which is a native of Jamaica, is about four inches long. It agrees pretty much with the common Creeper; having a slender, sharp-pointed bill, a little bending down, and black. The head, neck, throat, back, wings, and tail, are black; and over each eye there is the appearance of a white line. The bases of the great quills next the belly are white; and all the tail-feathers, except the two central ones, are tipped with white. The breast, the rump, and the borders of the wings, when they fall on the breast, are a fine bright yellow, a little inclining to a gold colour. The thighs, the lower belly, and covert-feathers under the tail, are of a pale yellow or whitish colour; and the legs and feet are dusky. Sir Hans Sloan says, that the rump above the tail is yellowish; and that the legs are no more than half an inch long.

CREEPER, BLUE. This bird has a small head, a short tail, and a long bill agreeing with the Creeper kind. The bill is about an inch long, slender, incurvated downwards, and blackish; and at the base of the upper mandible the feathers are black, and united to a black line drawn from the corners of the mouth to the eyes. The head and body are a fine deep blue; the prime-feathers, as well as the row next above them, are black; and the lesser coverts of the wings are blue. The tail is short, and of a blackish colour; and the legs, feet, and claws, are of a light yellow brown.

CREEPER, BLACK AND RED INDIAN. This curious little bird has a black bill, which extends pretty far into the head: its upper side is of a deep black colour, except some bright scarlet spots, the first of which covers the entire crown of the head; the second is in the middle of the hinder part of the neck; the third crosses the middle of the back; and the fourth and last takes up the covert-feathers of the tail. The tail and wings are wholly black, extremely glossy, and reflecting a deep blue. The entire under-side, the throat, neck, breast, belly, thighs, and covert-feathers under the tail, are white; and the legs, feet, and claws, are black.

This bird is a native of Bengal in the East Indies, and was first figured and described by Edwards.

CREEPER, BLACK AND BLUE. The bill of this species is pointed, slender, arched both above and below, and of a blackish colour; the crown of the head is a pale green; and round the base of the upper mandible there are blackish feathers, passing in black lines on both sides of the head, in which the eyes are placed. The sides of the head, the hinder part of the neck, the lower part of the back, the rump, the covert-feathers of the tail, a bar intersecting the superior part of the wings, and the

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whole under-side of the bird, are of a very fine ultramarine blue colour. A broad black line crosses the upper part of the back; the tail, and the exterior sides of the wings, are black; the insides of the wings are of a beautiful yellow colour, except round the ridges and the tips of the quills, which are dusky; and the legs and feet are orange-coloured. This bird is probably the same with the *guira coereba* of Marcgrave, described in his History of Brazil.

CREEPER, PURPLE INDIAN. This species has a long, black, arched bill; the head, neck, back, rump, and covert-feathers of the wings, are of a dark blueish purple colour; the tail is black; the belly, thighs, covert-feathers under the tail, and quill-feathers of the wings, are of a dusky brown; the inside of the wings, and the under-side of the tail, are of a dark cinereous hue; the breast is tinged with green; on each side there is a spot of yellow or gold-coloured feathers; and the legs and feet are black. This bird is a native of the East Indies.

CREEPER, GREEN. The bill of this species is incurvated downwards like the rest of the family, and is of a dusky hue, except at the base of the lower mandible, where it is flesh-coloured. The whole bird is of a fine parrot-green colour, except the tips of the quills, which are dusky. The top of the head, the neck, back, wings, and tail, are darkest, and appear of a blueish green; the whole under-side, as well as the rump, are lighter, and somewhat inclining to yellow; and the legs and feet are dusky, or black. This bird is a native of the Spanish West Indies.

CREEPER, NEW ZEALAND. This bird, which is pretty large, has a black bill; the head, neck, breast, back, and quill-feathers, are of a glossy deep green; the first row of the coverts of the wings is a changeable green and blue, and the second white; the hind-part of the neck is marked with a large rich blue crescent, in which some curled white feathers project beyond the rest; and underneath, on each side of the throat, there is a bunch of white curled feathers. The tail is long, and of a deep green colour, except its coverts, which are blue; and the legs are of a dusky hue.

CREEPER, LUÇON. Sonnerat, in his Voyage to New Guinea, mentions three species of Creepers which he met with at the isle of Luçon.

The first species has an olive-coloured body; the throat and top of the breast are of a shining blue; the belly is a bright yellow; and the bill and feet are black.

The upper part of the body of the second species, which is probably the female of the preceding, is also of the same olive colour, but less deep; the throat, breast, and belly, are yellow; and the feet and bill are black.

The crown of the head of the third species, which is by far the most beautiful, is of a pale green colour; the throat is a bright violet; the belly is a vivid red; the back, and the lesser coverts of the wings, are of a golden hue; the larger coverts are black; and the feathers which surround the vent and the tail are of the colour of polished steel, with a greenish cast.

CREX. A bird so called from its continually repeating *Crex, Crex*. The beak is of a moderate length, and of a black colour; the head and legs are also black; the neck, breast, and back, are white; and the wings are black variegated with white. It feeds on insects, and generally makes a loud noise while it continues on the wing. The name

name *Crex* has likewise been applied to the crake, or land-rail; but it does not appear that they are the same.

CRICETUS. This animal is sometimes called the German rat, but is described by Buffon under the appellation of hamster. It is of the size of the water-rat, which it resembles in the smallness of its eyes and the shortness of its tail. With respect to colour, it is rather of a deeper brown than the Norway rat, except the belly and legs, which are a dirty yellow. But the characters by which it may be distinguished from all others, are two pouches, like those of a baboon, on each side of its jaw, under the skin, into which it generally crams a large quantity of provisions. These bags, which are oblong, and when filled are each of the size of a large walnut, open into the mouth, and fall back along the neck to the shoulder: into these the animal thrusts the surplus of those fruits or grains which it gathers in the field, after the immediate calls of hunger are satisfied; and, thus loaded, it returns to its hole, in order to deposit the spoil, as a resource against the winter season. The size, the fecundity, and the voracious appetites of this animal, render it one of the greatest pests in those countries of which it is a native, and every method is practised for its extermination.

But though the *Cricetus* is very noxious to mankind, if considered with regard to those instincts which conduce to its own support and convenience, it claims our admiration. Its hole, which offers a very curious object for contemplation, and evinces a degree of skill infinitely superior to the rest of the rat kind, consists of a variety of apartments fitted up for the different occasions of the tenant: it is generally formed on an inclining ground; and is always furnished with two entrances, one perpendicular, and the other oblique; but, if there be more than one in a family, there are as many perpendicular holes as inhabitants. The perpendicular hole is that through which the animal usually ascends and descends; while the oblique one admits a freer current of air, as well as affords a safe egress when the other passage is accidentally stopped up. Within a foot of the perpendicular hole, there are two more, where this creature's provisions are deposited: these are much more spacious than the former, and are large in proportion to the quantity of stores. Exclusive of these, there is still another apartment, warmly lined with grass and straw, in which the female brings forth her young. All these communicate with each other, and collectively occupy a space of ten or twelve feet in diameter. The store-houses are generally furnished with dry corn, well cleaned; and sometimes corn in the ear, beans, and peas.

These animals usually begin to lay in their winter stock about the latter end of August; and, as soon as each magazine is filled, they carefully cover the mouth of it with earth, in so complete a manner, that it is difficult to discover where the mould has been turned. The only means of finding out these subterraneous retreats, are to observe their oblique entrances, which generally have small quantities of earth before them; and these, though often several yards from the perpendicular retreats, lead those who are skilled in the search to the tenanted apartments. Many German peasants procure a livelihood by finding out and bringing off the hoards of these creatures, which, in a fruitful season, often furnish two bushels of good grain in each reservoir. Like most others of the rat kind,

they generate twice or thrice in a year, bringing forth five or six at a time. At some periods they are astonishingly numerous; and, at others, they are less so. Moist seasons assist their propagation; and it often happens that, at such times, their devastations produce an universal famine. Fortunately, however, for mankind, these creatures, like the rest of their kind, destroy each other; and, of two which Buffon kept in a cage, male and female, the latter killed and devoured the former.

The fur of these animals is reckoned exceedingly valuable; for which reason the natives are very assiduous in their destruction. They have usually brown backs, and white bellies: many of them, however, are of a grey colour; which variation probably arises from a difference in their ages. They are very common in Thuringia and Misnia; and, according to St. Jerome, there are vast numbers of them in Palestine.

CRICKET. A genus of insects of the hemiptera class, nearly allied to the locust kind. Their distinguishing characteristics are these: the feelers are bristly; the covers of the wings are membranaceous; and the legs are adapted for leaping.

CRICKET, COMMON. This insect greatly resembles the locust in its conformation, its manner of ruminating, its voice, its leaping, and its methods of propagation: but it entirely differs from that insect in its colour, which is uniformly of a rusty brown; in its food, which is more various; and in its place of residence, which is usually the warmest chink of an oven or hearth. The smallest openings afford shelter for these animals; and, wherever they fix their abodes, they are sure to propagate. Being of a very chilly nature, they seldom leave the heat; and, if undisturbed, frequently hop from their retreats, in order to chirp at the blaze of the fire. Whether the voice of the Cricket is formed in the same manner with that of the grasshopper, namely, by a fine membrane at the base of the wings, moved by a muscle, and which, being coiled up, gives a sound like that of a quail-pipe, is not yet well ascertained; nor are we acquainted with the use of its voice, since anatomical inspection has not been able to discover the smallest auditory organs. Still, however, it is probable that these animals possess the power of distinguishing sounds, though in a less perfect manner than the superior ranks of nature, for they frequently call on and answer each other; though it should be observed, that the males only are vocal.

As Crickets live chiefly in the dark, their eyes seem fitted for the gloominess of their abodes; and those who would surprize them, need only light a candle suddenly, by which means they will be so dazzled and bewildered, as to be incapable of finding out their retreats.

These little animals, which are very voracious, will eat bread, flour, and meat; but are particularly fond of sugar. They never drink, but continue for months together at the backs of chimnies, where they cannot possibly receive any moisture. The warmth of their situation increases their mirth and loquacity; and, except in very cold weather, they never intermit their chirping, which is as disgusting to some people as it is grateful to others. The celebrated Scaliger, who is said to have been greatly delighted with the chirping of Crickets, usually kept several of them in a box, placed in a warm situation. Some people, on the contrary, who think that their voices are ominous, use all methods to destroy them; and Lælius in-

forms us, that a certain woman, who was very much incommoded by these animals, and had in vain tried many expedients to banish them from her habitation, at length accidentally succeeded as follows: having invited a few of her acquaintances for the purpose of celebrating the nuptials of two of her particular friends, in order to increase the festivity of the entertainment, she procured several drums and trumpets; the noise of which instruments had such an astonishing effect on these insects, that they immediately forsook their retreats, for they were never heard in future.

CRICKET, MOLE. This animal is the largest of all the Cricket kind with which we are acquainted, being two inches and a half in length, and three quarters of an inch in breadth. The colour is a dusky brown; and, at the extremity of the tail, there are two hairy excrescences, somewhat resembling the tail of a mouse. The body, which consists of eight scaly joints or separate folds, is brown above, but more deeply tinged below; the wings, which are long and narrow, terminate in sharp points, each having a longitudinal blackish line; the shield of the breast is of a firm texture, hairy, and blackish; the fore-feet, which are the principal instruments made use of by this animal in burrowing into the earth, are strong, webbed, and hairy: it generally, however, runs backward; but it commonly resides under ground, into which it penetrates more expeditiously than the mole. It is also supposed by some naturalists to be amphibious, and to be capable of living under water as well as under ground.

No insect is more formidable to gardeners than the Mole Cricket, as it chiefly inhabits that earth which lies light, and where it finds sufficient nourishment under the surface. Thus, in a single night's time, it will traverse the whole of a newly-sown furrow, and rob it of all its contents. Its legs are constructed in such a manner, that it can penetrate the earth in every direction, before, behind, and above. During the night, it ventures from its subterraneous habitation; and, like the common Cricket, exercises its chirping call. When the female is fecundated, she forms a cell of clammy earth, the inside of which is sufficiently capacious to contain two hazel-nuts; and in it she lays her eggs: the whole nest, which is about the size of a common hen's egg, is closed up on every side. The eggs, generally amounting to about a hundred and fifty, which are white, and each about the size of a caraway comfit, are carefully covered, as well to defend them from the injuries of the weather, as from the attacks of the black beetle; which being itself an under-ground inhabitant, would certainly, but for this precaution, either devour or destroy them. In order to prevent this calamity, the female Mole Cricket frequently places herself near the entrance of the nest; and, whenever the beetle attempts to seize its prey, the guardian insect catches it behind, and bites it asunder.

Nothing can possibly exceed the care and assiduity of these animals in the preservation of their young. Wherever a nest is situated, fortifications, avenues, and entrenchments, surround it: there are also numerous meanders which lead to it; and a ditch encompasses the whole, which few other insects are capable of passing. But the diligence of those Mole Crickets does not terminate here: at the approach of winter they move their nests entirely away, and sink them deeper in the ground; so that the influence of the frost cannot retard the

maturation of their young brood. When the weather grows milder, they raise their magazines in proportion; till at last they are brought as near the surface as possible, without being wholly exposed to view, in order to receive the genial influence of the sun: but should the frost unexpectedly return, they again sink them to their former depth.

CRICKET, FIELD. This species is of a blackish colour; with a large head in proportion to the body, and full prominent eyes. The forehead is furnished with two feelers without joints, but they are capable of inflection at the animal's pleasure. It has six legs of the same colour with the body; the hindmost of which being the longest, enables the insect to leap with the greater facility. The wings seem to be slightly variegated with sculptures, which cover almost the whole body; and the tail is forked. The body of the male is less than that of the female; and the latter has grass-green eyes, red feelers, and a trident tail.

These insects make their nests in the fields during the summer season, where they lie concealed in a mild winter; but, when a severe one happens, they burrow in the ground. They make a very singular noise with their wings; chirp day and night; and delight to bask in the sun, sitting at the mouths of their holes.

CRICKET, WATER. This insect has a pentagonal head, with prominent, globous, black eyes; near the mouth there are very short feelers; and on each side there are three feet, the hindmost being considerably the longest. The body is of a brownish, or rather a whitish black colour; the rudiments of wings appear on the back; and the tail is forked. It differs from the land Cricket in having a more prominent head, and a short neck; and the wings seem entirely useless for flight, though they assist the animal in rising. It is commonly seen sitting on aquatic plants, and emits a sound almost similar to that of the land Cricket.

CRISTA GALLI. An appellation given to a particular species of oyster, called by some *auris porci*, or the hog's-ear shell.

CROCEUS. An amphibious animal mentioned by some authors, which is neither fish nor bird, but both. During the summer, it assumes the form of a bird of a saffron colour, and frequents the mountains; but, towards the end of autumn, it returns to the sea, and becomes a fish. Where this creature is found, or what are its particular habits, is not ascertained; though the same fertility of invention which gave it birth might have also furnished its history.

CROCODILE. The largest animal of the lizard kind. It grows to the length of twenty-five feet and upwards, and is about the thickness of a man's body. The nose somewhat resembles that of a hog; the mouth is enormously large; and the superior jaw moving in the opening of it, gives the creature a very terrible aspect. The teeth, which are large, white, and numerous, are disposed like those of a comb; and in the lower jaw there are two very long ones which pass into cavities in the upper. The legs are placed sideways; and the feet are armed with extremely sharp claws, of which there are five on the fore ones, and four on the hind. The length of the tail is equal to that of the whole body; the skin of the belly is soft, and easily penetrable; but that of the rest of the body is covered with strong prickly scales, which are proof against either spears or musquet-balls. The colour of some of these animals is a dusky brown, with

with an admixture of grey; and, of others, a reddish yellow; but the former is the most common. This tremendous animal is a native of the rivers of the torrid zone, where it lies concealed among sedges and reeds till an opportunity offers of attacking some other animal, man himself not excepted. It's general food, however, is fish, of which it devours immense quantities. It's eggs are about the size of those of a goose, of which it lays fifty or sixty for a brood, burying them in the sand, and then leaving them to be impregnated by the heat of the sun. For a full and particular description of this animal, see ALLIGATOR.

CROCOTTA. A name given by the ancients to a very fierce and terrible animal produced by copulation between the large hyæna and the lions.

CROOK-BACK FISH. The name of this fish is derived from it's very singular shape. It's skin is smooth, having no scales; it's belly is white; and it's fins and tail are yellow. It grows to upwards of four feet in length; and it's flesh is much admired all over the East Indies on account of it's agreeable flavour.

CROPPER. A particular species of pigeon, called by Moore the columba gutturosa Bataviæ. It's figure is clumsy; and it receives it's name from a large crop, or bag of wind, under it's beak, which it can either raise or depress at pleasure. The legs, which are thick and short, are covered with feathers down to the very feet; the feathers on the thighs hang loose; and the legs are placed at an uncommon distance from each other. The crop, which is large, hangs very low; and the eyes are of a gravelly hue. Pigeons of this kind are of various colours.

CROSS-BILL. A genus of birds of the order of passeres, in the Linnæan system of zoology; the distinguishing characters of which are, that the tongue is plain, equal, and whole; and that the beak is large, thick, short, crooked, and convex both ways.

The Cross-Bill is an inconstant visitant of the British islands; but Gefner informs us that, in Germany and Switzerland, it inhabits the pine-forests, where it breeds so early as the months of January and February. It feeds on the seeds of the cones of pines and firs, and is very dextrous in scaling them; for which purpose the cross structure of the lower mandible of the bill is admirably adapted. It also subsists on hempseed and the kernels of apples.

It is indisputably true that Cross-Bills change their colours, or rather the shades of their colours; the males, which are usually red, varying at certain seasons to a deep red, to an orange, or to a kind of yellow; and the females, which are green, changing to different varieties of the same colour.

There are two sorts of this bird, the largest of which is very rarely seen; but Edwards thus describes the lesser.

CROSS-BILL, LESSER. The bill is pretty thick and strong, and of a dusky colour; the eyes are a dark hazel; the head, neck, breast, back, and rump, are a very deep red; the upper sides of the tail and wings are dusky; the edges of the quills and the tail-feathers are reddish; the insides of the wings and under-side of the tail are ash-coloured; the thighs, lower belly, and covert-feathers beneath the tail, are whitish, with some dusky spots; and the legs and feet are of a tawny flesh-colour. The female is of a yellow-greenish hue where the male

is red; but, in other respects, they pretty much agree.

CROTALOPHORUS ANGUIS. A term frequently used to express the rattle-snake.

Crotalophorus Anguis is also sometimes applied to a remarkable species of serpent more usually known by the name of cobra de capello.

CROW. The carrion or common Crow resembles the raven in the shape of it's body, it's appetites, and the manner of bringing up it's young. It feeds on carrion, or any other filth; and, when that cannot be obtained, it contents itself with grain and insects. Like the raven, it will pick out the eyes of lambs as soon as they are dropped; and indeed it only differs from that bird in being less bold, less docile, and less favoured by mankind.

England produces more birds of this kind than any other country in Europe. In the reign of Henry VIII. they were grown so numerous, and deemed so injurious to the farmer, that they were regarded as an evil worthy of parliamentary redress; and an act was accordingly passed, in the twenty-fourth year of the reign of that prince, for their destruction, in which rooks and choughs were also included. Every hamlet was to provide crow-nets for ten years; and, during that space, the inhabitants were obliged to assemble at certain times, in order to project the most effectual methods for extirpating them. But though Crows are very numerous in England, they are so uncommon in Sweden, that Linnæus mentions them only as birds he once knew killed there. The Crow lays about the same number of eggs as the raven, and they are of the like colour. Both of these birds are sometimes found white, or pied; but such are esteemed no inconsiderable objects of curiosity. The length of the Crow is about eighteen inches; the expansion of it's wings is two feet two inches; and it's weight is about twenty ounces.

CROW, ROYSTON, OR HOODED. The bill of this species agrees in shape with that of the rook; and they resemble each other in their habits, both of them flying in flocks, and feeding on insects. The Royston, or Hooded Crow, which is a bird of passage, visits England in the beginning of winter, and leaves it with the woodcock. It is found both in the inland and maritime parts of this kingdom; and, in the latter, it feeds on crabs and shell-fish.

This kind of Crow is very common in Scotland; and in many parts of the Highlands, as well as in all the Hebrides, Orknies, and Shetland isles, is the only genuine species, the carrion and the rook being there entirely unknown. It breeds and continues in these places during the whole year; and, perhaps, those of them which inhabit the northern parts of Europe are such as migrate here. In the Highlands, they build indifferently in all kinds of trees; lay six eggs; have shriller notes than the common Crows; and are much more mischievous.

Belon, Gefner, and Aldrovandus, all agree, that the Crow is a bird of passage in their respective countries; and that it visits high mountains in the breeding season, and descends into the plains on the approach of winter.

The length of this species is about twenty-two inches, the breadth twenty-three inches, and the weight twenty-two ounces. The head, the under-side of the neck, and the wings, are black, finely glossed with blue; the back, breast, belly, and upper part of the neck, are of a pale ash-colour; the legs

legs are black, and smaller than those of the rook; and the bottoms of the toes, which are very broad and flat, enable it to walk, without sinking, in muddy and marshy grounds, to which it greatly resorts.

CROW, INDIAN. This species, which has a yellow streak, of an uncommon form, running from the top of the head to the eyes, is of the colour of the common pigeon; and the last quill-feathers of the wings are each marked with a red streak in the middle. There are two birds of this kind; the bill and legs of the largest are of a bright yellow; but the smallest is wholly red, mixed with a little yellow.

CROW, CAROLINIAN. Lawson affirms that the flesh of this species is as proper for food, and as palatable, as that of the pigeon. It never feeds on carrion, but is a great enemy to corn-fields; and it's voice and manner of building it's nest resemble those of the rook.

CROWN IMPERIAL SHELL. A species of the voluta.

CRUCIAN. This fish, which is called the cyprinus carassius by Linnæus, is common in many of the fish-ponds in the vicinity of London, and other parts of the south of England; but, according to Pennant, is not a native fish. It is very deep and thick; the back is much arched; the dorsal fin consists of nineteen rays, the two first of which are strong and serrated; the pectoral fins have each thirteen rays, the ventral nine, and the anal seven or eight; the lateral line runs parallel; and the tail is almost even at the extremity.

This fish is generally of a deep yellow colour; and the flesh is coarse, and not much esteemed among those who have higher luxuries at command.

CRUSTACEOUS FISH. A name of distinction given to such fishes as are covered with shells composed of several pieces or scales, such as crabs and lobsters. These shells are usually softer than those of the testaceous kind, which consist of a single piece, and are commonly much thicker and stronger than the former; such as those of the oyster, scallop, and cockle.

CRUYSHAGE. A fish of the shark kind, somewhat approaching to that singular one called the zygæna, but much less monstrous, it's head being only triangular, or something of the shape of a heart; whence Willughby has named it zygænæ affinis capite triangulo. The eyes are very small, and placed at the sides of the head; and the mouth, which is small and triangular, and situated a great way beyond the end of the nose, is furnished with three rows of very minute teeth.

CUCKOW. A distinct genus of birds of the order of picæ in the Linnæan system of zoology; the characters of which are, that the feet are adapted for climbing, having two toes before, and two behind; that the bill is smooth, and somewhat arched; that the tail is whole, and composed of ten feathers; that the tongue is short and membranaceous, and terminated by hairs; and that the nostrils are prominent. Linnæus enumerates twenty-two species.

The note of the Cuckow is universally known; but it's history and nature are enveloped in obscurity. It has been asserted by some, that this bird devours it's parent; and that it changes it's nature with the season, and becomes a sparrow-hawk: but these legends have long since been sufficiently confuted. Still, however, it remains a secret where the Cuckow resides in winter, and how it is nourished during that inclement season.

The claws and bill of the Cuckow are smaller and weaker than those of other rapacious fowls. This singular bird, which is somewhat less than the pigeon, shaped like the magpie, and of a greyish colour, is distinguished from all others by it's round, prominent nostrils, on the surface of the bill. The lower part of the body is of a yellowish colour, with black transverse lines under the throat, and on the top of the breast; the head, the upper part of the body, and the wings, are beautifully marked with tawny and black transparent stripes; and on the top of the head there are a few white spots. The extremities of the feathers on the rump and the bottom of the back are white; and the inner edges of the exterior parts of the wings are painted with large transverse white spots. The tail, which is pretty long, is transversely marked with black and tawny streaks; and on the exterior edges of the feathers there are several white spots. The legs are short, and covered with feathers down to the very feet, which are weak, and yellowish; and the claws are nearly of the same colour. It has four toes, two of which are placed before, and two behind; and the mouth is large, and yellowish on the inside.

After having disappeared during the winter, the Cuckow is discovered in this country early in the spring by means of it's well-known voice. It is indeed silent for some little time after it's arrival; and, when it exerts it's note, it is only a call to love used by the male, which is commonly perched on a dead tree, or bare bough, repeating his song, which he relinquishes as soon as the amorous season is past. The note of this bird is so uniform, that his name, in every language, seems to have been derived from it; and in all countries it is used in the same opprobrious sense. This reproach, however, probably originated from the Cuckow's making use of the nest of a different bird, in which to deposit it's eggs, and leaving the care of it's young to some other of the feathered tribe. A water-wagtail, or even a hedge-sparrow, generally officiates as nurse to the Cuckow's young brood; and, if they happen to be hatched at the same time with the genuine offspring, they quickly destroy them by overlaying, as their magnitude is very soon greatly superior.

From the curious voice of the Cuckow, the farmer may be instructed in the real advancement of the season. Human calculations, it is well known, are liable to much fallibility; but, as the note of this bird depends on a certain temperature of the air, it may with no small degree of propriety be accounted an unerring guide.

The note of the Cuckow, though uniform, is yet pleasant; and, from an association of ideas, seldom recurs to the memory without putting us in mind of the sweets of that season in which nature wantons in beautiful luxuriance, the eye is gratified with the most pleasing objects, and the ear with the most delightful harmony.

When the Cuckow is sufficiently fledged, and of course prepared for flight, it does not long tend it's supposed parent; for, as it's appetites for insect-food increase, it cannot expect to obtain a supply by imitating it's little instructor: it therefore takes a final leave of, and seldom offers any violence to, it's nurse. All the little birds, however, who consider the young Cuckow as their enemy, and revenge the causes of their kind by repeated insults, compose the train of it's pursuers: but the wryneck is the most active in the chase; and from
hence

hence has been considered by many as the provider and attendant of the Cuckow. Yet it is well known that this bird follows it with no amicable intention; but either to insult it, or as a spy who warns the little warblers of the impending danger.

Such are the habits of this bird while it continues in this country; but, on the approach of winter, it totally disappears, nor can its passage be traced to any other. Some imagine that the Cuckow conceals itself in hollow trees; and others, that it passes into warmer climates: but which of these suppositions is the true one, cannot be decided on, as nothing has hitherto been related on either side that amounts to a certainty. However, the most probable conjecture is, that as quails and woodcocks shift their habitations in winter, so also does the Cuckow; but whether it retires to rest, or whether any person has ever observed the course which it steers, we are totally at a loss to determine.

Some authors have questioned whether Cuckows are carnivorous birds; but Reaumur, who bred up several of them, informs us, that they would not feed either on bread or corn, but that flesh and insects were their favourite aliment, though the latter seemed to be most congenial to their appetites. Their voracity, indeed, is not to be wondered at; for their stomachs are so very capacious, as to reach from their back-bones to their vents. Nevertheless, they are not to be considered as birds of prey, being destitute of the essentials for that purpose, namely, strength and courage: but that they are naturally weak and timid, appears by their flying from those smaller birds by which they are always pursued.

The Cuckow measures fourteen inches in length, and twenty-five in breadth, and weighs about five ounces. The young are of a brown colour mixed with black, though in that state some authors have described them as old ones.

The Cuckow was anciently consecrated to Jupiter. That god, according to fiction, having rendered the air extremely cold, transformed himself into a Cuckow, and reposed on the bosom of Juno, who received him willingly, (a poetic figure, intimating the success of an intrigue;) and Mount Thornax, in Peloponnesus, where this adventure happened, was from that time called the Mountain of the Cuckow.

CUCKOW, GREAT SPOTTED. This bird, which is supposed to be an alternate inhabitant of the southern parts of Europe and the northern parts of Africa, has a pretty strong black bill, somewhat long in proportion to its thickness, and a little incurvated downwards; the lower mandible being slightly angulated underneath. A black line is extended backwards from the angles of the mouth to the hinder part of the head, narrowest at the extremes, and broadest in the middle, in which the eyes are placed; the crown of the head is covered with soft feathers of a blueish ash-colour, which, from their length and looseness, exhibit the appearance of a crest; the whole upper side of the neck, the back, wings, and tail, are covered with dark brown feathers, the greatest quills and tails being the darkest, and approaching to black. All the wing-feathers, except the greater quills, are tipped with white and very light ash-colour, as well as the upper covert-feathers of the tail. The two middle feathers of the tail are wholly dark; and all the side-feathers, as they gradually shorten in length, increase in the depth of their white tips.

The under-side, from the sides of the head and

throat to the breast, is of a pretty bright brown, inclining to orange; which colour gradually changes on the belly and thighs to a dirty yellowish brown, and ends in the coverts beneath the tail. The insides of the wings and under-side of the tail are of an ash-colour; the legs are short in proportion; two of the toes stand forward, and two backward; the claws are pretty strong, and black; and both legs and feet are covered with black scales.

CUCKOW, INDIAN BLACK. This bird is about the size of the English blackbird; the bill is thicker and stronger than in some of the kind, and of a bright orange colour; the sides of the upper mandible, when they fall over the nether, do not run in a straight line, but in a wave; the head, body, wings, and tail, are wholly covered with deep black feathers, without one mark or spot of other colours; notwithstanding which, they possess such a shining lustre, that, on being exposed to different lights, they reflect by turns all the various colours of the rainbow. The middle feathers of the tail are pretty long; but the side ones become gradually shorter; both the tail and the wings are pretty long; and the legs, feet, and claws, are short, thick, and strong.

Edwards remarks, that as it is not easy to define how a bird which sometimes appears entirely black, should on a little turn assume shining colours, though no such are placed near it to be reflected back, he imagines that these feathers must have in their composition some transparent, triangular fibres, which operate on the eye in the manner of a prism.

CUCKOW, INDIAN BROWN AND SPOTTED. This species is about the size of the thrush, but the body is longer in proportion to its magnitude; the head is large, and the tail very long; the bill is pretty strong and thick for this tribe of birds, and of a dirty yellow inclining to green; the head, the neck, the whole body, the wings, and the tail, are of a brown colour, spotted and barred throughout with a lighter brown or white; the head, wings, and back, are darker than the under side, spotted and intermixed with a lighter brown; though, on the lesser coverts of the wings, there are some white spots. The breast, belly, thighs, and covert-feathers under the tail, have a great proportion of white a little mixed with orange colour; and all the under-side is confusedly covered with semilunar black spots. The legs are short, and yellowish; the feet are of the same colour; two of the toes stand backwards, and two forwards; and the claws are dusky.

As this bird strongly resembles the common Cuckow, it may be inferred by superficial observers of nature, that they are in fact the same; but it will be proper to remark that they disagree in several essentials: it is less by one-third; the colours on the belly and under-side are very different; and the legs correspond only in their proportionable shortness. This species is a native of Bengal; and, in the language of that country, is called bought-fallic.

CUCKOW, GREEN. The bill of this species is thick and short; the edges of the upper mandible are a little waved; the colour is yellow; and, from the base both of the upper and lower mandible, proceed some stiff black hairs, projecting forwards, so as to cover the nostrils. The space round the eyes, and about an inch down the throat, is covered with black feathers; the top of the head, the neck, back, rump, and lesser covert-feathers of the

wings, are of a most splendid green; reflecting blue and gold colours; but the fore-part of the neck is of a very blue green. The wings, externally, are of a light ash-colour, with very minute transverse, irregular lines, of dusky or black; the tips of the quills are wholly dusky; the insides of the wings are of a dark ash-colour; and the inner webs of the quills are white at their bases. The tail is composed of twelve feathers, long in the middle, and gradually shortening towards the sides; the six middle feathers are externally green, with black tips, and internally of a dark ash-colour; and the exterior feathers on each side are white above and beneath, with narrow transverse lines of black running their whole lengths, except that their tips are entirely white. The breast, belly, and covert-feathers beneath the tail, are of a fine full orange or gold-colour; the thighs and legs, which are invested with short feathers down to the feet, are of a light ash-colour, with transverse lines of black; and the feet and claws are brownish.

This bird seems to be the same with the curucui of Marcgrave; whose description nearly agrees with the above, except that he makes the under side of a vermilion colour.

CUCKOW, LARK-HEELED. This species is somewhat larger than the lark; the bill is dusky; the head, neck, back, and coverts of the wings, are ferruginous, marked with short lines of white bounded by black; the belly is a yellowish brown; the first and second primaries being of a reddish brown, and the rest barred with black. The tail is very long; the exterior feathers are dusky, tipped with brown; and the rest are marked with black and brown bars. The legs are black; and the interior toe behind is furnished with a very long straight claw, after the manner of the lark. This bird is a native of Bengal.

CUCKOW, SPECKLED, OF SONNERAT. This species is twice as large as the European Cuckow. The upper part of the body and the wings are of a deep brown colour, marked with yellowish spots. The back is of an oblong figure on the neck, and the lesser coverts of the wings, and the coverts are barred transversely with yellow and some black specks. The throat is white and speckled like the back; the belly and breast a bright reddish colour, transversely barred black; the tail is long, the feathers which compose it being of an equal length, and of a yellowish red colour barred with black; the irides are reddish; the bill is black; and the feet are of the colour of lead.

CUCKOW, LITTLE, OF SONNERAT. The upper part of the head of this species is of a bright grey colour; the neck behind, the back, and the wings, are of an umbre hue; the throat is a shining grey; the belly is a bright yellowish red; the tail is black above, and barred transversely below with white and black; and the feet and bill are a bright yellow, except that the latter is blackish at the point. This bird and the preceding, which are natives of the isle of Panay, were first described by Sonnerat.

CUCULUS INDICATOR. A bird supposed to be of the cuckow kind, found in the interior parts of Africa, at a great distance from the Cape of Good Hope, and called by the Dutch settlers honig-wyzer, or honey-guide. It is considerably smaller than the common cuckow; and is very remarkable on account of its conducting those persons who observe its motions to wild bee-

hives, by means of a shrill-sounding note resembling Cherr, Cherr. The natives answer this note by a soft whistle; and the bird repeats its call till it arrives at the hives.

CUCULLUS. A genus of shells of the voluta kind, called by some authors the cornet-shells.

CUCURI. A Brazilian fish of the shark kind, but not very mischievous. It is called casson by the Portuguese; and is about two feet and a half long. The head ends in a hyperbolic figure; the mouth is placed in a very singular manner; it has only one row of very small teeth; the eyes are pretty large; and the belly is of a silvery white colour.

CUCURUCU. An American serpent of an enormous size, being frequently ten or twelve feet long. It is of a yellowish colour, strongly variegated with irregular black spots. This reptile, which is extremely venomous, is greatly dreaded by the natives; but its flesh is very delicious, and highly esteemed.

CUGNACUARANA. An American beast of prey, usually confounded with the tiger; and described by Marcgrave as one of the three species of American tigers, the jaguara and jagarete being the two others. Those two animals are evidently of the lynx or leopard kind rather than the tiger; and this creature is probably as little related to the tiger as they are. However, it is a large and very fierce animal, of the shape of the jaguara, and of a pale tawny colour, but a little duskier on the back than on the sides. The hair is very short; and under the chin, and on the belly, there is a small portion of white.

CUGUACUETE and CUGUACUAPARA. Brazilian animals of the caprea kind, which appear to be male and female of the same species, and not distinct animals. The former is destitute of horns, and is probably the female. The latter has horns composed of three branches; one of which springs forth near the insertion, and from this they run up single to the extremity, where they are bifid.

Johnson has figured this animal under the name of the capreolus marinus. A pair of horns belonging to this curious animal is preserved in the British Museum.

CUGUPUGUACU. A very large Brazilian fish, sometimes measuring six feet in length. The head and mouth are large, the last being destitute of teeth; and the eyes are of a middle size, with yellow irides. The tail-fin is almost square; and the scales are small. The whole head, back, and sides, are of an ash-colour mixed with umbre; but towards the back, the tints become deeper. The fins, and all the fins, together with the scales, are of a brown. The whole head, back, and sides, are sprinkled with small black spots; but the fins are of one uniform colour.

CUIRIRI. A Brazilian bird of the starling kind, strongly resembling the common starling, and only differing from the p. vacu in having a yellow spot on its head; many have concluded it to be the male of that species.

CULEX. The name of a genus of winged flies, comprehending gnats, and hums; the distinguishing characteristic of which is that the head is furnished with a syphon, or slender, oblong, and filiform.

CUNEI. A term sometimes applicable to tellinæ as have one side of the shell much extended than the other.

CUNICULUS. A genus of animals of the lepus or hare kind; in English, the rabbit.

CUNICULUS AMERICANUS. A name given by some authors to the animal called tapeti, a small species of rabbit.

CUNICULUS BRAZILIENSIS. A species of rabbit called also aperea.

CUNICULUS SIBERICUS. The long-tailed Siberian rabbit, the fur of which is highly esteemed. During the summer months, many of these creatures are beautifully variegated with oblique and transverse streaks of black and grey.

CURASSO BIRD. This bird is nearly as large as a hen turkey. Its bill is black at the point, and covered at the basis with a yellow skin; above the bill, between the nostrils, there is a round hard knob of a yellow colour; and on the head there is a crest of long black feathers, which project forwards at the points. The whole bird is of a deep shining black colour, reflecting blue and purple shades, except the lower part of the belly and the covert-feathers under the tail; and the legs and feet are covered with a scaly skin of a dark flesh-colour.

Sloane, in his History of Jamaica, calls this bird the gallus Indicus.

CURCULIO. A genus of beetles, distinguished by having the antennæ affixed to an elongated corneous snout. See *SCARABÆUS*.

CUR-DOG. This variety of the canine race, called also the house-dog, is about the size of a fox, with upright ears, and a sort of woolly hair under the tail. But such various breeds often propagate together, and produce a mongrel tribe, that it is impossible to discriminate the different species of this genus with any degree of accuracy.

CUREMA. A fish of the mullet kind, which grows to the length of two feet. It has a very large moveable upper lip; but the under one is small, of a triangular figure, and scarcely visible on account of its extraordinary minuteness. The eyes are large; and the fins are of a fine silvery white colour. In other respects, it resembles the common mullet.

CURICACA. A Brazilian bird, called mafarino by the Portuguese. It is nearly as large as the goose, but resembles the curlew in its shape. The beak is upwards of four inches in length; the neck and back are covered with white and yellow feathers; and the whole body is black, except that the back, the head, and the lower parts of the belly, have a greyish cast. There is another species of the Curicaca, but distinguishable from the former only by the smallness of its size.

CURIMATA. A name given by some authors to the lavaretus.

CURLEW. A sea-fowl, called also arquata and numenius, which frequents the coasts during the winter season; and retires, at the approach of spring, to the mountains, for the purpose of fecundation.

The Curlew weighs about twenty-seven ounces; its length, from the top of the bill to the end of the claws, is twenty-nine inches, but to the end of the tail only twenty-three inches and a half; the expansion of the wings is three feet four inches; the bill is near six inches long, a little crooked, and of a dark brown colour; the tongue is short; the legs are long, bare, and of a dusky hue; and there is a thick membrane which reaches to the first joint. The colour is diversified with ash and black; and the flesh is esteemed very delicate by some, while others consider it as rank and fishy.

CURLEW, LESSER. This species, which is sometimes called the whimrel, resembles the former in every generic circumstance except its size. Its length, from the tip of the bill to the extremity of the tail, is seventeen inches; and its greatest expansion is thirty-three inches and a half. Its bill is three inches long; and its weight is twelve ounces. The top of the head is of a dark brown colour, without any spots; the back, as far as it is covered with the wings, is white, in which circumstance it differs from the common Curlew; and the legs are greenish.

CURLEW, LITTLE. The bill of this bird is black; the neck and belly are grey; the wings, which are mottled with white and brown, have three large black feathers on each; and the feet, below the knees, are of a dun ash-colour.

CURLEW, STONE. The bill of this bird is straight, two inches long, black towards the nostrils, and yellow at the point; and the expansion of the wings is three feet. Under each of the eyes, which are yellow, there is a bare space, of a yellowish green. The breast, thighs, and chin, are a yellowish white; the middle of the back, the head, and the neck, are black, marginated with a reddish ash-colour; on the quill-feathers there are transverse white spots; and some of the wing-feathers, which are tipped with white, exhibit a very beautiful mottled appearance. The tail, which is about six inches long, is variegated like the wings; the legs are long, and of a yellowish colour; and the claws are small and black. This bird has no hind-toe; and those before are united by a small membrane. It is a native of several English counties, particularly Norfolk; and is remarkable for its piercing, shrill note, which it puts forth in the evening. It lays two eggs of a copper colour; it feeds on worms and caterpillars; and its flesh is very delicious.

CURLEW, BROWN, OF SONNERAT. This species is about the size of the European Curlew. The plumage is of a reddish brown; the eyes are surrounded with a naked greenish skin; the bill is likewise of a greenish hue; the feet are red; and the irides are of a lively scarlet colour. It is a native of the isle of Luçon.

CURLEW, SPECKLED, OF SONNERAT. This curious bird is considerably larger than the common Curlew. The top of the head is black; the head, neck, and breast, are white, beautifully marked with longitudinal white bars; the belly is adorned with transverse and semicircular black bars; the lesser coverts of the wings and the back are of an umbre colour, having several white spots on their margins; the larger coverts of the wings are wholly black; and the tail is a pale grey, cut by black transversal lines. This species likewise inhabits the isle of Luçon.

CURTILLA. An appellation given by some naturalists to the corvus sylvaticus of Gesner.

CURVATAPINIMA. A name sometimes given to the fish more usually known under that of bonito.

CURUCUI. A bird of the wood-pecker kind, found in Brazil. The bill is short, broad, and of a sulphur colour; the irides are of a golden hue; and the legs, which are short, are covered with feathers almost to the feet. The whole breast and lower belly are of a beautiful red; the upper part of the back and the tail are of a shining green, with a varying gloss; the edges of the tail are black; and the feathers underneath are white, elegantly

gantly striped transversely with black; and the wings are of various colours, green at their beginnings, whitish in their centres, and blackish at their extremities.

CURUCUI, SPOTTED. This bird is of the size of the nut-hatch; the bill is brown; the crown of the head is a deep green; the neck, breast, and belly, are a pale brown barred with dusky; the edges of the wings are white; the coverts and secondaries are green tipped with white; and the tail is dusky, barred with white. This little animal is a native of the isle of Ceylon.

CURVICAUDA. A species of bee-fly very common in England, extremely troublesome to horses, and vulgarly known by the name of wriggle-tail.

CURURUCA. An American fresh-water fish of an oblong figure. It grows to the length of a foot and a half, has a remarkably large mouth, and its flesh is esteemed agreeable food.

CUSHEW-BIRD. This bird so greatly resembles the curassow, that some naturalists have entertained an opinion that they are of the same species. The Cushew-Bird derives its name from the knob over its bill, in shape like the American Cushewnut; which knob, together with the basis of the upper mandible, are of a fine blue colour; the rest of the bill is red; and the eyes have reddish brown irides. The whole upper part is a deep glossy black, reflecting different hues, according to the position of the bird and the rays of light falling on the eyes of the spectator. The lower part of the belly, the covert-feathers under the tail, and the tips of the tail-feathers, are white; and the legs and feet are covered with a scaly skin of a dark flesh-colour. The Cushew-Bird appears to be the same with the pauxi of Nieremberg.

CUSI. The Philippine name of a very small and beautiful species of parrot.

CUTHBERT DUCK. A particular species of aquatic fowl.

CUTTLE-FISH. A genus of sea insects of the gymnarthria kind, called also the Ink-fish.

The Cuttle-Fish, which is of an oblong shape, is about six inches in length, and three and a half in breadth. The body is somewhat oval; but it is broadest near the head, and grows smaller towards the extremity, where it is obtusely pointed. The back is covered with a shell as large as a man's hand, about an inch thick in the middle, but more slender on the sides: this shell, which is hard above, but very spongy and brittle below, is of a whitish colour, and is used for a variety of well-known purposes. Under the throat there is a vessel or bladder containing a fluid blacker than ink, which the Cuttle-Fish, when pursued by its enemies, ejects in considerable quantities; and this darkening the water all around, enables the animal to escape with facility. There are two sorts of legs joined to the head of this fish, which assist it in swimming, and conveying its food to its mouth; the two shortest, which are in the middle, are serrated on their insides; next to them there are two long ones, one on each side; and the six remaining ones are of a pyramidal figure, and generally turned backwards. This animal, which feeds on small fish, is found on many of the European shores, particularly the Mediterranean; and its flesh is esteemed salubrious and pleasant.

The bone of the Cuttle-Fish is rough and absterfise, and chiefly used in medicine as a dentifrice: it is hard on one side; but so very soft on the

other, as to receive neat impressions from medals, and to serve as a mould for casting metals, which thus take the figure of the original; and it is also used in the polishing and cleaning of silver.

CUT-WATER. This bird, which is described by Catesby as a species of gull, is black from the middle of the head to the tail; but the legs, and part of the bill, are red. The bill is very irregular, the under mandible being nearly two inches longer than the upper; and it is almost as strong and sharp as the blade of a case-knife.

CYCLOPTERUS. A genus of branchiostegious fishes; the distinguishing characters of which are, that the branchiostege membrane on each side contains six small cylindric bones; that the body is of an oblong, globose figure; that the belly-fins unite at their extremities, so as to form one regular fin of the shape of a funnel; and that the fins are six in number. The only species yet discovered of this curious genus is the sea-owl.

The above appellation is derived from Kuklos, a Circle; and Pteron, a Wing. In the Linnæan system, this constitutes a genus of the nantes amphibia.

CYGNUS CUCULLATUS. A name improperly given by some naturalists to the dodo, a very large bird approaching to the cassowary kind, but weaker in the legs and neck.

CYLINDRUS. A genus of shell-fish of which there are many very elegant and valuable species. This genus, however, is more usually known at present under the name of rhombus; though with less propriety, as the word *Cylindrus* very aptly expresses the shape of the shell, which is cylindric and oblong; while the rhombus refers to a lozenge, which by no means conveys any idea of the real figure.

The shells of this genus are univalve, of an oblong, cylindric figure, having oblong mouths, and frequently the clavicles separated from the bodies by circles; and the columella is in some species smooth, and in others rough. But the most obvious distinction of this genus, without having recourse to the formation of the mouth, is, that in all the species, both ends of the shell are nearly of the same size, though the tail-part is certainly somewhat smaller than the head. The head is not separated from the body by an elevated rib, as in the volutæ, but follows the shape of the body, though sometimes it is divided by a dentated furrow; and in some, but very few species, by a prominent circle. This character, which brings the *Cylindri* nearly in alliance with the volutæ, renders the distinction the more difficult; but, in this case, the extremity of the shell must be regarded, which in the *Cylindrus* is always obtuse, and in the voluta as invariably pointed. The family of the *Cylindri* are very numerous.

CYMBIUM. An appellation given by many conchologists to a kind of sea-shell, called also the gondola shell. It is a genus of the concha globosa, or dolium, and comprehends several species.

CYNIPS. A genus of four-winged insects of the hymenoptera kind, having a spiral sting which is generally concealed, and being destitute of a proboscis.

CYNOCEPHALUS. A name given by some naturalists to an animal of the monkey kind, the magot of Buffon. It has no tail, but only a small protuberance at the place of insertion. The face, which is prominent, bears some resemblance to that of the dog; the body is covered with a brownish hair,

hair, except on the belly, where it is yellowish; and the rump is large, callous, and red. This animal grows to the height of three or four feet, and is a native of most parts of Africa and the East.

CYNOGLOSSUS. A fish common in the Mediterranean seas. It very much resembles the foal, but it's flesh is neither so delicate nor so well-flavoured.

CYNOGLUCOS. An appellation given by the ancients to an animal partaking of the shape both of the dog and the wolf, and supposed to be generated between these two creatures.

CYNOMUIA. The classical name of the dog-fly. See DOG-FLY.

CYPRÆA. A genus of univalves, called also porcellana, or cowries; and sometimes venerea, from their being peculiarly dedicated to Venus, who was said to have endowed a shell of this kind with the powers of a remora, so as to impede the course of the ship which was sent by Periander, the tyrant of Corinth, with orders for the castration of the young nobility of Corcyra.

Shells of the Cypræa genus are generally semi-oval, having their mouths placed in their flat part; their spires are not externally visible, the revolutions being performed within the body of the shell; the aperture, or mouth, is a narrow opening, or vent, running the entire length of the shell; the lips, which are near each other, are broad, turning inwards, and ferrated; and the two ends or extremes on the upper-part are very prominent. At one extreme there appears a wry gutter, or opening, like the mouth of a foal; the other extreme has

also a gutter, but perpendicularly placed; and near it, in some species, there is another protuberance, formed like a small rude clavicle or turban.

These shells are extremely numerous; and most of the species are very beautifully coloured and polished, which embellishments they receive from nature altogether unassisted by art. They are generally found round the shores of islands, in their recent or living state, in almost every country of the world.

CYPRIANUS. An Aristotelian appellation for the carp.

CYPRINUS. A very extensive genus of fishes, in the Artedian system; the characters of which are these: the branchiostege membrane on each side contains three bones; the whole mouth is smooth, and destitute of teeth; but, pretty low in the jaws, there are two hard and ferrated bones, which supply the place of teeth, and opposite to these there is a soft oval bone corresponding with them; and the air-bladder, which appears as if tied in the middle, is thus divided into two parts.

This fish is of the malacopterygious kind; and the two jaws are usually of the same length, but sometimes the lower one is the longest. Of this genus are the barbel, bleak, bream, carp, chub, gudgeon, roach, and tench. In the Linnæan system, this is a genus of abdominales.

CYPRINUS LATUS. A name given by many authors to the common bream.

CYPRUS BIRD. A common name for the atricapilla, or black cap; a small bird very common in the isle of Cyprus, and not unusual in England. See BLACK CAP.

D.

DAB. A small fish of the pleuronectes kind, in the Linnæan system, called by some naturalists passer asper and limanda.

The Dab-fish, which is flat, and superior in flavour to the common plaice, though inferior in size, is covered with small scales, very rough at their extremities, as if ferrated; and the eyes, which are placed on the right side, are very near each other. It is generally of an uniform brown colour on the upper side, though sometimes shaded with a darker; the lower side is white; and the lateral line is very much incurvated at the beginning, but afterwards proceeds straight to the tail. This fish, which is supposed to be in it's highest perfection during the months of February, March, and April, spawns in May and June, and remains flabby and watery during the rest of the season.

DAB, SMEAR. This fish resembles the former, and it's flesh is equally delicious. It grows to about a foot and a half in length, and at the widest part measures about eleven inches between fin and fin. The head is very small; the eyes are placed pretty near each other; and the mouth is full of small teeth. The dorsal fin, which rises near the mouth, and extends within a short space of the tail, consists of seventy-nine rays; the lateral line is much incurvated for the two first inches from it's origin, and then proceeds straight to the tail; the back is covered with small smooth scales of a light brown colour, spotted obscurely with

yellow; and the belly is white, and marked with five large dusky spots.

DABUAH. An Arabian appellation for the hyæna.

DACE, or DARE. The cyprinus leuciscus of Linnæus. This fish resembles the chub in it's shape; but is smaller and whiter, and has a less head in proportion to it's body. Like the roach, it is gregarious; frequents the same places; breeds prodigiously; and is extremely vivacious, sporting with it's companions during the summer season near the surface of the water in a very frolicksome manner. The head of this fish is small; the irides are of a pale yellow colour; and the body is slender, and seldom exceeds ten inches in length, though some naturalists make mention of one which weighed a pound and a half. Like the rest of the leather-mouthed fishes, it has no teeth in it's jaws, but only in it's throat; the back is dusky, with a cast of yellowish green; the sides and belly are silvery; the dorsal fin is dusky; the ventral, anal, and caudal fins, are red; and the tail is extremely forked.

The Dace is in the highest season during the months of April and May; but, being rather coarse and insipid, it is very little esteemed. However, it affords the expert angler great diversion; for it will bite at any fly, though it is particularly fond of the stone caddis, or May-fly. Indeed, in warm weather, this fish seldom refuses a fly at the surface of the stream; but, during the cold months, the bait

must be sunk within three inches of the bottom. The winter-fishing for Dace requires very different baits; namely, those white, red-headed maggots, usually found in great numbers in ploughed lands, and which, if deposited among fresh earth, may be preserved many months for that purpose.

Dace are extremely vivacious; and, when immersed in water, will live a considerable time, provided that element is frequently changed. They are said to subsist on the animalcula found in the water; and, in time, to become extremely tame.

DACOLYTHUS. An appellation given by many authors to a small fish, a species of the loach, distinguished by Ray under the name of *cobitis barbatula aculeata*. It seldom exceeds two, or at most three, inches in length; the head is broader and flatter than the rest of the body; the back is of a dusky brown colour, spotted with black; and the belly is yellow. There are two beards on each side of the upper-jaw; and on the coverings of the gills, on both sides, there are two prickles, or a double-pointed sharp hook, by means of which the *Dacolythus* moves about among the stones. This fish, which is very partial to shallow waters with stony bottoms, spawns in May and June.

There is another species of this fish, distinguished from the preceding by having ten beards at it's mouth: and a notion prevails among the vulgar, that it swallows little stones; hence it's German appellation signifies Stone-swallower, or Stone-biter.

DACTYL. A name frequently given to the solen, or razor-fish, supposed to be the *Dactylus* of Pliny, and to which that naturalist ascribes a luminous quality in the dark. Reaumur, however, asserts, that the common sol or razor-fish possesses no such quality; but that the pholas, or, as the French call it, the dail, certainly does; and therefore concludes, that the pholas is either the *Dactylus* of Pliny, or that this author has attributed to one species of fish what is the peculiar property of another.

The shell of the *Dactyl*, or pholas, is by no means luminous, but only it's body and juices; and in this respect it bears no affinity to some kinds of fish which are known to possess the quality of shining in the dark, since these never exhibit a luminous appearance till they are in a state of decay, and partly putrid; whereas those retain their resplendent quality at all times. The glow-worm is only partially luminous; but the pholas is entirely so; and, when divested of it's shell, and deposited in any dark place, every part of it's surface emits a very lively light. Nor is that light peculiar to the external surface of this fish, but common to the whole body; for, when wounded either transversely or longitudinally, the mangled parts appear equally luminous with the other surfaces. The *Dactyl* is therefore a genuine, natural phosphorus; and, like the artificial one of urine, renders every object luminous by friction.

Reaumur has remarked of this fish, that, when fresh caught, it abounds with water, which naturally drops away on being handled; and, according to Pliny's just observation, these very drops are luminous. However, the light which the *Dactyl* communicates to bodies coming in contact with it, is not permanent, but continues only while they are wet. Reaumur observed that the light on his fingers grew fainter and fainter by degrees as they dried; and that, on dipping them in water, it brightened up again. By this circumstance, he was encouraged to attempt some mode of pre-

serving this fish, so as to make it an occasional phosphorus, but the experiment did not coincide with his wishes.

In the summer months *Dactyls* may be kept fresh for several days, during which they will retain their luminous quality; but, as they begin to decay, they gradually lose their lustre: and it also appears that, if dead ones are intermixed with living, the latter will lose their luminous quality even in their best state.

It is well known that all the species of the pholæ live in holes in stones and other substances, where they have no egress; and Reaumur having caused some of these stones to be taken up, (in which, on breaking them, there appeared some dead fish, and some living ones) discovered, that the living animals contained in them did not possess their luminous property, but that it seemed to be extinguished by having been in contact with such of the pholæ as were dead and putrid.

DAGYSA. A marine animal found within twenty leagues of the coast of Spain, and first noticed by Sir Joseph Banks and Dr. Solander, who gave the name of *Dagysa* to this new genus of marine animals because of the resemblance which one species of them bore to a gem. This creature, which was of an angular figure, about three inches long and one thick, had a perforation quite through it, and a brown spot at one extremity, which these gentlemen conjectured to be the stomach. Four of these animals, when first taken, adhered together by their sides, and appeared to be only one; but, on being put into a glass of water, they soon separated, and swam about. Several specimens of them were afterwards caught sticking together, sometimes to the length of a yard or more; and, when in the water, exhibiting very beautiful colours.

DAKER HEN. The English name for the *ortygometra*, a bird of the gallinaceous kind somewhat resembling the quail. It weighs about four ounces and a half; it's length, from the tip of the bill to the end of the claws, is fifteen inches, and to the end of the tail eleven inches and a half; the expansion of the wings is nine inches; the body is narrow, or compressed sideways like that of the water-hen; the breast and belly are white; on the head there are two broad black lines; and there is likewise a white one which runs from the scapulars, as in the moor-hen. The back is black, with an admixture of reddish ash-colour; and the lesser coverts of the wings, as well as the borders of the prime-feathers, are of a deep yellow. The tail is two inches long; the bill is of a moderate size; and the legs and feet, which are long, are between a saffron and a green colour.

The *Daker Hen* resembles the quail in many respects, and is said to associate with one species of quails. During the spring, it frequents corn-fields, and puts forth a croaking call very peculiar to itself, which fowls sometimes imitate with much success. It is very common in Ireland and Scotland; and is sometimes seen in the northern counties of England, where it is known under various appellations.

DAMIER. A name given by French naturalists to that elegant species of voluta, the spots of which are placed in a chequered order, resembling the marks of a draught or chess-board.

DANCER. An appellation sometimes given to a species of the dog.

DANGCANGHAC. The Philippine name for

for the ardea, or heron. The Spaniards call it gazza; and it appears to be the same species with the common heron.

DANISH DOG. An animal which, as to it's shape, seems to be a compound of the mastiff and the grey-hound, being more slender than the one, and much stronger than the other. It is the tallest dog generally bred in England, but is more shewy than serviceable. See Dog.

DARE. A provincial name for the dace.

DART, ACONTIAS. An animal of the serpent kind, so called from it's shooting itself forward like a dart. It is of a whitish ash-colour; the belly is entirely white; and on the back there appears a number of black spots. The neck is black, and from thence run two white lines along the back to the tail; and the black spots, which are small, are all encircled with rings of white. Travellers affirm, that serpents of this kind lodge in trees, from whence they suddenly dart on such persons as casually pass within their reach; and that their bites prove mortal. They are found in Egypt, Lybia, and the Mediterranean islands. See ACONTIAS.

DART OF AMBOYNA. This reptile, which is about six feet long, and as thick as a man's arm, is covered with scales of a reddish brown colour, except on the back and sides, where they have an azure hue. The head is of a moderate size; the eyes are large and bright; the teeth are small; and the tail is long and pointed.

DASYPUS. The Dasypus forms a genus of brutes of the class of mammalia, in the Linnæan system. This genus has many grinding, but no cutting or canine teeth. The several varieties are distinguished by the number of bands encompassing them, and which reach from the back to the edges of the belly. Accordingly, Linnæus enumerates the single-banded, the three-banded, the four, six, seven, and nine-banded Dasypus. See ARMADILLO, and TATU.

DAUPHIN. A species of shell-fish of the cochlæa lunares genus, or round-mouthed snails; ornamented with rows of indented eminences on all the revolutions of the shell.

DAW, JACK, or COMMON DAW. This bird is less than the crow. From the hind-part of the head to the middle of the neck, it is of an ash-colour; the breast and belly are somewhat of the same hue; but the rest of the body is black, with a blueish gloss. The head is pretty large; which circumstance, according to Willughby, indicates this bird to be ingenious and crafty. The irides are white; the forehead, the bill, and the feet, are black; and the claws are very strong and hooked. The bill is an inch and a quarter in length; and the tongue is cloven at the end. It weighs nine ounces and a half; from the tip of the bill to the extremity of the tail, it measures thirteen inches and a half; and the expansion of the wings is twenty-eight inches. The female lays five or six eggs, which are less pale and spotted than those of the crow. It breeds in many European countries; and delights to lodge about old towers, castles, church-spires, and stone walls, especially such as are desolate or ruinous. In some parts of Hampshire, it makes it's nest in rabbit-holes; but it very seldom inhabits trees.

The Jack-Daw is very docile and loquacious; it is a gregarious fowl; it feeds on nuts, fruits, grain, and insects; but it's flesh is not deemed proper food.

DAW, PURPLE. According to Catesby, this

bird is of a purple colour; the bill is black; the tail is longer than that of the common Jack-Daw; and the middle feather considerably longer than the rest. The purple hue of this fowl is so very deep that, at a distance, it appears as if entirely black; but the hen is of a brown colour.

DAW, BLACK AND YELLOW, OF BRAZIL. This bird is about the size of the common Daw. The bill, which is yellow, is a little incurvated at the point, pretty sharp, and smooth on the surface; the plumage is black, with a slight gloss of purple, except a spot of bright yellow on the covert-feathers of each wing; and the lower half of the back, the covert-feathers both above and beneath the tail, and the bottoms of the tail-feathers, are also of a fine golden yellow. The wings are internally black; and both the black and yellow parts of this bird have their downy feathers at the bottoms very white. The tail consists of twelve feathers; the legs and claws are strong, and covered with black scales; and the exterior and middle toes adhere a little at their bottoms. According to Marcgrave, the eyes of this fowl are of a sapphirine colour.

DAW, BLUE AND GREEN. This beautiful bird is said to be a native of the isle of Ceylon. The bill, which is black, is a little arched, and has an angle on each side of the upper mandible near the point; the whole head, the neck, the under-side to the tail, the lower part of the back, and the tail, are entirely of a most delightful blue, shaded with a cast of purple, and having a bright shining surface like polished metal; the lesser coverts of the wings, both above and below, are of the same shining blue colour; the middle of the back, the quills, and the two rows of coverts above them, are a most splendid green reflecting glosses like burnished gold; the covert-feathers have black tips, forming two rows across each wing; the insides of the quills, and the under-side of the tail, are a dusky black; the tips of the tail-feathers, and the middle of the belly between the legs, have the blue feathers tinged with green; the legs, feet, and claws, are pretty strong in proportion, and covered with black scales; and the exterior toes adhere a little, at their bottoms, to the middle ones. This species was first described by Edwards.

DAW, SURINAM. This bird is about the size of the common crow; the top of the head is of a deep green colour; the hind-part is marked with a fine blue, and beneath that with pale green. Under each ear, and on the hind-part of the neck, there are spots of a greenish colour; the neck, breast, belly, back, and coverts of the wings, are a varying green; the primaries are dusky, terminating in blue; the tail is blackish; and the legs are of a flesh-colour.

DAY-FLY. An inoffensive race of insects, which pass their very limited state of being as the prey of numerous enemies, whose injuries nature has not fitted them either to retort or avoid. They live near those waters in which they breed; and, in their winged state, enjoy such a short existence, as to have afforded scope for the reflections of the naturalist, and emblems for the moralist.

The term Day-Fly originates from these insects living in that state only one day; but, with respect to many of the species, even that period is circumscribed.

That particular class which some naturalists describe under the name of phryganea, never bursts from it's reptile state till about six in a summer's evening;

evening; and, before the sun rises next morning, it is no more. Five hours generally compleat it's contracted span of life; during which, if it is fortunate enough to escape the fishes, the dragon-flies, and the reed-sparrows, it deposits it's impregnated eggs in the waters, and dies before the midnight cold. The worm, however, which is hatched from the egg of this fly, lives and feeds at ease in the waters, enjoying a much longer existence, and that in more security; for it covers it's tender frame with a motley case of it's own constructing; and lives, unsuspected and unseen, for one, and sometimes nearly two years.

The Day-Fly has an oblong mouth; it is destitute both of teeth and feelers; there are two large studs on the head, exactly above the eyes; the wings, which are carried standing upwards, are unequal in size; and the tail has bristles projecting from it.

DAY-FLY, WHITE-WINGED. Insects of this species fly with great velocity: they abound near running waters during the months of June and July, supplying multitudes of fishes with food, which eagerly watch them while depositing their eggs; and no sooner do they propagate their kind, than they pay their ransom with their lives. The antlers of the Day-Fly have a multitude of knotted joints, which grow smaller towards their points; the bristles of the tail are hard and firm; the head is of a dusky brown colour; the eyes are green; the studs above the eyes are a jetty black and lucid; the mouth forms a kind of amber-coloured beak; the trunk is a tawny brown, with a brighter spot in the centre; the body is a dull brown with pale rings; the legs are a greyish or ash-colour; the tail is a pale brown; and the bristles are ruddy.

DAY-FLY, ROCK. For the history of this fly, which is particularly curious, we are indebted to the late ingenious Dr. Hill, who informs us, that he became acquainted with this little insect in the following very singular manner. Having observed several oblong, greyish tubes or cases, running in various directions on a stone obelisk erected before a certain house in London, he was inclined to suppose that they were tubuli, or cases of sea-worms, petrified; but finding that this obelisk carried evident marks of the chissel, and that the little tubules were wrought over them, he directed some to be picked off, but found them as hard as the rest of the stone, and affixed to it with great solidity. However, by the assistance of a hammer, a few of them were disengaged; but they exhibited nothing shelly in them, being mere stony tubes, formed of the substance of the obelisk in small granules cemented close.

Thus, as the Doctor informs us, the matter rested for some time; but his curiosity being awakened by the singularity of the incident, he examined large masses of stone wherever they presented themselves; and, happening to pass into Buckinghamshire in the month of July, he there found means to unravel the whole mystery.

Several large stones, partly immersed in water, were, in those parts of them which remained dry, covered with grey stony tubules, of the same kind as he had formerly observed on the obelisk; and, in the space of one evening, he discovered more than fifty flies about one mass, which evidently owed their origin to the worms enclosed in the tubules. These flies are very beautiful creatures, and somewhat resemble the phryganea in the shortness of their duration, as well as in various other

particulars. The Doctor observed the females busied in depositing their eggs in all the visible cracks and crevices of the stones, where the worms form tubules for themselves, and probably live in that state for one, or even two years.

The head of this fly is hoary, and of a fine green colour, with a black round spot on it's centre shining at the top; the eyes are a deep black; the studs are brown; the antlers are long, projecting straight forwards, and usually crossed; the mouth is dusky; the trunk, which is a lively green, is united to the body by a kind of neck of a glossy green; the back is beautifully variegated with streaks and dots of gold; and the scutcheon is of a lighter green. The body is thick, and green; the legs are a pale brown; the wings are a pearly grey, elegantly veined and clouded with a pale blue and a light brown; and the bristles are of an amber colour.

DEATH-WATCH. The English name of the pediculus, or wood-louse, a species of termes belonging to the order of aptera, and class of insects, in the Linnæan system. It is nearly of the size of the common louse; and it appears that the ticking noise commonly heard, proceeds either from the male or female, and is expressive of their amorous dalliance. This sound hath long been considered by weak minds as a presage of death in those families where it is heard; and hence this insect is also called pediculus fatidicus, mortifaga, and pullatorius.

There are two species of Death-Watches; one of which is aptly described by Mr. Allen, in the Philosophical Transactions. According to this gentleman, it is a very small beetle, five-sixteenths of an inch in length, of a dark spotted brown colour, and having pellucid wings under the vaginæ, a large cap or helmet on the head, and two antennæ proceeding from beneath the eyes; and the part with which it beats is the extreme edge of the face, which he calls the upper lip; the mouth being protracted by this bony part, and lying underneath entirely out of sight.

The above account is confirmed by the celebrated Dr. Derham; with this variation only, that instead of striking with the upper-lip, he observed that the animal drew back it's mouth, and beat with it's forehead. This ingenious naturalist is said to have preserved a male and a female in a box for several months, and to have induced one or other of them to beat, whenever he thought proper, by a nice imitation of it's noise; and, by this ticking sound, to have repeatedly excited the male to an amorous connection with the female.

The second species of Death-Watch is an insect apparently very different from the first. The former gives only seven or eight strokes at a time, and very quick; but the latter often beats for several hours together without any intermission, and it's pulsations very much resemble the ticking of a watch. This last, which is a small grey insect, when viewed with the naked eye, appears like a louse, and originates from a minute white egg considerably smaller than the nit of that animal. In March, the insect is hatched, and creeps about dragging it's shell after it. When it first quits it's covering, it is even smaller than it's egg, though that is scarcely discernible without a microscope. In this state it is somewhat like the mite found in cheese; and, from this diminutive condition, it gradually attains to maturity.

DECACTIS. An appellation given by some naturalists to a kind of star-fish of the branched or astrophyte

âtrophyte kind, having ten rays where they are first parted from the body, each of which is repeatedly ramified:

DEER. A numerous genus of animals of the order of pecora in the Linnæan system; the distinguishing characters of which are, that the horns are deciduous every year, solid, and ramified; and that there are eight cutting teeth in the lower-jaw, and none in the upper.

If we compare the internal structure of the bull and the stag, we shall find a striking similitude between them; though, in shape and form, no two animals can be more dissimilar. Though one of those creatures is among the swiftest, and the other the heaviest, of the creation, the following are the slight internal distinctions between them: all the Deer kind are destitute of a gall-bladder; their spleen is proportionably larger; and their kidneys are differently formed.

Deer compose some of those innocent and peaceable animals which embellish the forests and animate the solitudes of nature. The easy elegance of their form, the lightness of their motions, and those large branches which seem rather intended to ornament their heads than to contribute to their powers of defence, their magnitude, their strength, and their fleetness, all conspire to rank them among the first of quadrupeds, and the most worthy objects of human curiosity.

DEER, STAG. The Stag, or Hart, the female of which is called a Hind, and the young a Calf, differs, both in it's magnitude and in the conformation of it's horns, from the Fallow-Deer. The Stag is much larger; and his horns are round; while those of the fallow kind are broad and palmated. The first year, the Stag has properly no horns, but only a kind of corneous excrescence, short, rough, and covered with a thin hairy skin; the second year, the horns are single and straight; the third year, they have two antlers; the fourth, three; the fifth, four; and the sixth, five. The animal's age, however, cannot always be known with certainty by these indications, for sometimes they are more, and frequently less. When arrived at the sixth year, the antlers do not always increase; and though the number may amount to six or seven on each side, the Stag's age is then estimated rather from their size, and the thickness of the branch which sustains them, than from their number.

These horns, notwithstanding their magnitude, are shed annually, and succeeded by new ones. Of the old horns, which are of a solid, firm texture, handles for knives, and other domestic utensils, are usually made; but, while young, nothing can be more tender or soft: and the creature, as if conscious of it's imbecility, after shedding it's former horns, instantly retires from the rest of the herd, and, hiding itself in solitudes and thickets, never ventures abroad for the sake of pasture, but in the night season. During this interval, which usually happens about the latter end of February or the beginning of March, the new horns occasion a very considerable degree of pain to the poor Stag, and have a keen sensibility of any external impression; at which time also the flies are very troublesome to the animal, who on that account appears disconsolate and dejected.

When the old horns are shed, the new ones do not immediately begin to appear; but the bones of the skull are then invested only with a transparent periosteum, or skin; which, according to anatomists, covers the bones of all animals indiscriminately. This skin, however, soon becomes tumid,

and forms an excrescence containing a considerable quantity of blood, and which gradually appears covered with a downy substance soft as velvet; and nearly of the same colour with the rest of the animal's hair. This tumour daily protrudes from the point like the graft of a tree; and, rising by degrees from the head, shoots out the antlers on each side; so that in a few days, according to the condition of the animal, the whole head is completed. For some time, however, the horns are very soft, and covered with a sort of bark; which is merely a continuation of the integument of the skull. This bark is velvety and downy, and every where furnished with blood-vessels, which supply the nascent horns with nourishment: as they creep along the sides of the branches, their prints are marked over the whole surface; and, the larger the blood-vessels, the deeper those prints appear. Hence arise the inequalities on the surfaces of the horns of the Deer kind, which we see furrowed all along the sides, the impressions diminishing towards the points, where the parts are as smooth and solid as ivory. But it should be remarked, that the substance of which the horns are composed begins to harden at the bottom, while the superior part remains soft, and continues to grow; from whence we may rationally conclude, that the horns of Deer grow differently from those of sheep or cows, which are invariably observed to increase from their bottoms. However, when the whole head has attained it's full growth, the extremities begin to acquire their solidity; the velvet covering, or bark; together with the blood-vessels, dry up, and then begin to fall; which process the animal itself seems to accelerate, by rubbing it's antlers against every tree that it approaches: and in this manner the whole external surface being gradually stripped off, the head at last acquires it's complete hardness, expansion, and beauty.

To enter into a philosophical enquiry with respect to the production of these horns; would lead to an extensive field of doubtful argumentation: suffice it therefore to observe, that if a Stag be castrated when his horns are shed, they will never grow again; and, on the contrary, if the same operation be performed while the horns are in perfection, they will never fall off. If he be deprived of only one of his testicles, he will be destitute of one horn on that side; and if one of them is only tied up, he will want the horn on the opposite side. The quantity of his provisions will also tend to facilitate the growth and expansion of his horns. Buffon asserts, that it is possible to stop their growth entirely by a considerable retrenchment of food; and, as a confirmation of this assertion, nothing can be more obvious than the difference between a Stag bred in a fertile pasture and undisturbed by the hunter, and one ill fed and liable to perpetual alarms: the head of the former is expanded, his antlers are numerous, and the branches thick; whereas the latter has but few ramifications, the traces of the blood-vessels on them are but slight, and their expansion is inconsiderable. The beauty and size of their horns, therefore, mark the strength and vigour of the animals; for such of them as are sickly, or have been wounded, never protrude that magnificent profusion so much admired in the Deer kind. Thus the horns may not inaptly be assimilated to a vegetable production grafted on the head of the animal: like vegetables, they grow from the extremities; like vegetables, they are for some time covered with a nutritive

bark; and, like vegetables, they have their annual decay and reproduction. So that, by the assistance of a strong imagination, we might fancy that the leafy productions on which the animal feeds once more vegetate in his horns.

It has been previously remarked, that Stags have no sooner shed their horns, than they separate from each other, and seek the champain parts of the country, remote from all other animals which their situation renders them unable to oppose. In this state of imbecility they continue near three months, before their horns attain to their full growth and solidity; and then, by rubbing them against the branches of thickets, they at length clear them of that skin which had before contributed to their growth and nourishment. Some have roundly asserted, that the horns assume the colour of the sap of those trees against which they are rubbed; but this assertion is undoubtedly erroneous, since it is well known that such Stags as are kept in parks where no trees grow, have a variety in the colour of their horns, which can only be ascribed to the operations of nature.

Soon after these animals are furnished with new horns, they begin to feel the impressions of the rut, or the natural desire of propagating their kind. The old ones are generally the most forward in this business; and accordingly, about the end of August or beginning of September, they leave the thickets, and return to the plains in quest of hinds, whom they court with a loud tremulous voice. At such seasons their necks become remarkably turgid; they appear bold and furious; fly from one place to another; strike with their horns against the trees, and every other opposing object; and continue restless and fierce till they have found the females, who at first avoid them, but are at last overtaken and compelled.

When two Stags are competitors for the same hind, how timid soever they may appear at other times, they now seem agitated with an unusual degree of ardour: they paw up the earth, menace each other with their horns, bellow prodigiously, and desperately engage, seemingly determined either to conquer or die. Such combat usually continues till one of the parties is either completely worsted, or put to flight; and it often happens that the victor is obliged to fight several such battles before he remains the undisputed master of the field. On these occasions, the old ones are generally the most successful, as they possess a much greater degree of strength and courage; and these also are by the hinds preferred to the young ones, the latter being more feeble, and less ardent. However, they are all equally inconstant, confining themselves to one female but for a few days, and then seeking out another, who is, perhaps, not to be enjoyed without a repetition of their former danger.

After this manner the Stag continues to range from mate to mate for about three weeks, the extent of the rutting-time; during which period, he scarcely either eats, sleeps, or rests, but continues to pursue, to combat, and to enjoy. At the termination of this season of insanity, (for such it seems to be with respect to these animals) the creature, which was before very fat, sleek, and glossy, becomes lean, feeble, and timid. Having performed this duty enjoined him by nature, he retires from the herd, in order to seek food and repose; he frequents the verge of his bounds; and selects the most nourishing pastures, where he continues till his strength is renovated. Thus is his whole

life spent in the alternations of plenty and want, of corpulence and leanness, of health and sickness, without having his constitution materially affected by the violence of such transitions.

This animal does not arrive at a state of perfection for upwards of five years, and generally lives above forty: and, indeed, it seems to be a pretty general rule in the animal œconomy, that every creature lives about seven times the number of years which it continues in a growing state. What, therefore, has been reported by some, with respect to the life of this animal, has undoubtedly originated from ignorance and credulity. It has, indeed, been affirmed, that a Stag was formerly caught in France, having his neck begirt with a collar bearing this inscription—*‘Cæsar hoc me donavit,’* which some have interpreted of Julius Cæsar; but it should be remembered, that Cæsar is a general name for Emperor; and therefore it is more rational to conclude, that one of the emperors of Germany (who are always stiled Cæsars) might have been the donor of such inscription.

However, it is certain that the Stag may differ as to the term of his life, either in respect of the goodness of his pasture, or the repose he may be suffered to enjoy; for these are circumstances which not only influence his age, but also his strength and vigour. The Stags inhabiting the plains and vallies which abound in corn and pasture, are much more corpulent, as well as tall, than such as are bred on rocky wastes or heathy mountains. The latter are low, small, meagre, and incapable of running with the celerity of the former, though they are found to hold out much longer: they are also more artful in evading the hunters; and their horns are usually black and slender, while those of the lowland Stags are reddish and flourishing. So that the beauty and stature of these animals are proportioned to the richness of their pasture and the extent of their security.

The colour of the English Stag is generally red, or a reddish brown, with some black about the face, and a black list down the hinder-part of the neck, and between the shoulders: nevertheless, in other countries, the greatest number of these animals is brown; a few of them, indeed, are white, but such seem to be tinged with a domestic breed. The Stag has the most beautiful eye of any animal that is a native of this climate; and his senses of smelling and hearing are in no less perfection than that of vision. When in the least alarmed, he lifts his head, erects his ears, and stands for a few moments as if in a listening posture. Whenever he ventures on some unknown ground, or quits his native covert, he makes a pause at the skirt of the plain, in order to examine every object around him; after which he turns his face against the wind, for the purpose of discovering by his scent the approach of any enemy. Should a person at some distance whistle, or call aloud, the Stag immediately stops short in his slow-measured pace, and gazes on the intruder with a kind of aukward admiration; but, if the sagacious animal perceives neither dogs, nor any instruments of destruction levelled against him, he then proceeds forward without betraying the smallest emotions of fear. Man, indeed, is not the enemy he seems to be most apprehensive of: on the contrary, the sound of the shepherd's pipe seems to inspire him with pleasure; and, accordingly, the hunters sometimes make use of that instrument, in order to allure the poor animal to his destruction.

The Stag eats with great deliberation, and is
very

very delicate in the choice of his pasture; and, when he has satisfied the calls of nature, he retires to the covert of some thicket, in order to chew the cud in security. However, he seems to perform the act of rumination with much greater difficulty than either the cow or the sheep; for the grass is not returned from the first stomach without much straining, and a kind of hiccup, which is extremely perceptible during the whole time of it's continuance: but this defect may probably proceed from the greater length of the neck, and the narrowness of the passage, which in animals of the cow and sheep kind are considerably shorter and wider.

This animal seldom drinks in the winter season, and still less in the spring, while the plants are tender, and covered with the morning dew; but, in the heat of summer, and during the rutting-time, he is observed constantly to frequent rivers and lakes, as well to allay his thirst as to cool his ardour. He swims with great ease and strength, particularly when he is in good condition, his fat keeping him buoyant, like oil on the surface of the water; and, at such seasons, he even ventures out to sea, swimming from one island to another, though frequently several leagues asunder.

The voice of this animal is stronger, louder, and more tremulous, in proportion as he advances in age; and, during the rutting-season, it is even terrible. The cry of the hind or female is not so loud as that of the male, and is never excited but through apprehensions for the safety either of herself or her young; and it may perhaps be unnecessary to add, that she is destitute of horns, and is more feeble and unfit for hunting than the male. As soon as she has conceived, she separates herself from the males, and all intercourse with each other is immediately suspended. The time of gestation continues between eight and nine months; and she seldom produces more than one at a time.

The usual season of parturition is about May, or the beginning of June, during which these creatures are very assiduous to conceal their young in the most obscure retreats. Nor is this a needless precaution, since almost every other animal then becomes their formidable enemy: the eagle, the falcon, the osprey, the wolf, and the dog, as well as all the rapacious animals of the cat kind, are at this period in continual motion, for the discovery of their abodes. But, what appears extremely unnatural, the Stag himself is also their avowed enemy; and the hind is obliged to exert all her industry in order to conceal her young from him, as one of their most dangerous assailants. At this season, therefore, the courage of the male seems to be transferred to the female; for she defends her offspring against her less formidable opponents by force; and, when pursued by the hunter, even exposes herself to danger, for the purpose of diverting his attention from those objects of her regard: she flies before the hounds, in a direct course, with amazing fleetness; and, if she is so fortunate as to escape with her life, she returns to her young after having eluded her pursuers. The calf (for so the young of this animal is called) never quits the dam during the whole summer; and, in winter, the hind, together with all the males under a year old, assemble in herds, which are more or less numerous in proportion to the mildness or severity of the season. At the approach of spring, the season of gestation, they separate, none but those of the age of one year remaining associated. These animals, however, are in general gregarious; and only danger or necessity can possibly divide them.

Of all the enemies to the Stag, those of the human species appear to be the greatest. Men of every age and nation have made choice of this animal as the object of one of their most favourite pursuits; and those who first hunted from necessity, have continued the practice for the sake of amusement. In this country in particular, hunting has ever been esteemed the favourite diversion of the great; and indeed, originally, beasts of chase had this whole island for their range, they knew no other limits than the ocean, nor acknowledged any particular master.

The jurisprudence of the Roman empire, which was accommodated to the manners of the first ages, established it as a law, that as the natural right of such things as have no proprietor belongs to their first possessor, so all kinds of wild beasts, birds, and fishes, are the property of those individuals who can first catch them. But the northern barbarians, who over-ran the Roman empire, entertaining a strong relish for this rude amusement, and being now possessed of more easy means of subsistence from the lands they had conquered, their chiefs and leaders began to appropriate the sole right of hunting; and, instead of a natural right, they made it the privilege of royalty. When the Saxon kings, therefore, had established themselves into an heptarchy, the chaces were reserved by each sovereign for his own particular diversion: the arts of war and hunting, in those uncivilized ages, constituted the only employments of the great; their active but uncultivated minds were susceptible of no pleasures but such as were of a violent kind, procured exercise for their bodies, and charmed away the languor of reflection. But, as the Saxon kings appropriated those lands only to the business of the chase which before lay waste, so no individual received any injury from the restraint. The case, however, was totally altered when the Norman kings got possession of the throne: the passion for hunting was then carried to excess, and every civil right was involved in universal ruin. Even in a superstitious age, the ardour for hunting was stronger than the consideration of religion: the village communities, nay, even the most sacred edifices, were thrown down, and turned into one extensive waste, in order to make room for animals which were the objects of a tyrant's heedless pleasures; sanguinary laws were enacted for the preservation of the game; and, in the reigns of William Rufus and Henry I. it was less criminal to commit murder than to destroy a beast of chase. Thus royal tyranny prevailed while the Norman line filled the throne; but, when the Saxon line was restored under Henry II. the impolitic rigour of the forest-laws was meliorated: the barons also, for a considerable time, imitated not only the encroachments, but also the amusements, of their monarchs; yet, when property began to be more equally distributed, through the introduction of arts and the progress of industry, these extensive hunting-grounds became more limited; and, as tillage and husbandry increased, beasts of chase were obliged to give way to those which mankind had taken more immediately under their protection.

In the present cultivated state of this country, Stags are almost unknown in their wild, natural condition; and such as remain among us, are kept under the name of Red Deer, together with the Fallow-Deer; but they are much less numerous than formerly. Their excessive ferocity during the rutting-season, and the coarseness of their flesh, have contributed

contributed in a great measure to their extermination. The few that still remain in a wild state are found on the moors which border on Cornwall and Devonshire; in the Highlands of Scotland; and in Ireland, on the mountains of Kerry, where they essentially add to the magnificence and beauty of the romantic scenery of the celebrated Lake of Killarney.

In England, the Stag and the buck are hunted in a similar manner; the animals are driven from their retreats in some park, and pursued through the open country. But those who pursue the wild animals, have a higher object, as well as a much greater variety, in the chase. To let loose a creature whose spirit has been broken by subjection, in order to catch it again, seems to be but a poor pursuit, as the reward, when obtained, is only what had before been given away; but to pursue an animal which owns no proprietor, and which the first seizer may be said to possess, has something in it at least apparently more rational, that rewards the hunter for his toil, and seems to compensate his industry. Exclusive of the superior strength and swiftness of the wild animal, it is endowed with more sagacity to elude the attacks of the hunters, and consequently adds to the pleasures of the chase. In pursuing a Stag turned out of a park, or other inclosure, as it is unaccustomed to danger, so it is but little versed in the stratagems of escape; and as the hunter follows him with the certainty of victory, he feels none of those alternations of hope and fear which originate from the doubtfulness of success.

Peculiar terms have been invented by hunters to express the different objects of their pursuit; and, as these terms may be said to form a part of the natural history of the animal, they are therefore necessary to be known. The professors of almost every science seem to delight in adopting a language familiar only to themselves, and thus accumulate words which, in the eye of ignorance, have the specious guise of knowledge. Accordingly, the Stag, when in his first year, is called a *calf*, or *hind-calf*; in his second, a *knobber*; in his third, a *brock*; in his fourth, a *staggard*; in his fifth, a *stag*; and, in his sixth, a *bart*: whereas the female, (the hind) in her first year, is called a *calf*; in her second, a *bearse*; and, in her third, a *hind*.

The Stag, when in his retreat, is said to *barbour*; and, when he cries, to *bell*. The print of his hoof is called a *slot*; his tail, a *single*; and his ordure, the *feumet*. His horns are denominated his *bead*: when simple the first year, they obtain the name of *broches*; the third year, *spears*; the fourth year, that part which bears the antlers is stiled the *beam*, and the little impressions on it's surface, *glitters*; while those which rise from the crust of the beam are called *pearls*. The antlers also have distinct names: the first which branches off is called the *antler*; the second, the *far-antler*; and all the rest which grow afterwards are called *royal antlers*, except the highest, which is called the *crown*: the little protuberances about the tops are called *croches*. The impression on the place where the Stag has reposed, is stiled the *layer*; but if it be in a covert, or a thicket, it is called his *barbour*. When he has entered a thicket, and there left marks by which his size may be guessed, it is called an *entry*; when he casts his head, he is said to *mew*; and, when he rubs it against the branches of trees, in order to disengage the peel of his horns, he is said to *fray*. When the animal, after

being hard hunted, takes to the water, he is said to *go sail*; when he turns his head against the hounds, he is said to *bay*; and, when the hounds pursue on the scent till they have unharboured him, they are said to *draw on the slot*.

Such is a specimen of the terms used by hunters in pursuing the Stag; many of which are now either become obsolete, or only retained by huntsmen and game-keepers. The chase, however, still continues a favourite sport in those parts of the kingdom where Red Deer abound; and often constitutes the amusement of those whose minds might be supposed capable of more liberal pursuits.

In those few places where this animal remains perfectly wild, that amusement, as already observed, is far superior. The first grand concern of the hunter, when he leads forth his hounds to the mountain's side, where Deer are generally known to resort, is to select a proper Stag for the chase. His ambition is to unharbour the largest and boldest of the whole herd; and for this purpose he examines the track, which if he finds long and large, he concludes that it must have belonged to a Stag, and not a hind, whose footsteps are rounder. Those prints also which he leaves on trees by rubbing his horns against them, demonstrate his size, and point him out as a proper object of pursuit.

In tracing Stags to their haunts, the following particulars are observable. They change their manner of feeding every month. At the conclusion of their rutting-time, which is about November, they feed in heaths and broomy places. In December, they herd together, withdrawing into the bosoms of forests, for shelter from the severity of the weather, where they feed on holm, elder-trees, and brambles. The three subsequent months, (namely, January, February, and March) they separate into companies of four or five; and, venturing towards the margins of the woods, there feed on winter pasture, but sometimes making incursions into the neighbouring corn-fields, in order to devour the tender shoots on their first appearance above ground. In April and May, they rest in thickets and other shady places, seldom venturing forth unless roused by impending danger. In September and October, their annual ardour returns; and then they quit the thickets, and boldly face every danger, without any certainty either of food or shelter.

When, from a knowledge of the foregoing circumstances, the hunters have discovered the residence of the Stag, and the quality of the game, their next business is to uncouple and cast off their hounds in the pursuit; who no sooner perceive the timid animal flying before them, than they open in concert in full cry, following rather by the scent than the view, encouraging each other to persevere in the chase, and tracing the fugitive with amazing sagacity: nor are the sportsmen less ardent, cheering the dogs, and directing their pursuit. On the other hand, the Stag, when first unharboured, seems to fly with the velocity of the wind, leaving his pursuers far behind him; till at length, having gained his former coverts, and no longer hearing the cries either of the hounds or hunters, he stops, views every object around him, and seems to recover his natural tranquillity. But this cessation proves only momentary; for his resolute pursuers continue to trace him, and he is once more apprized of his approaching destruction. He, however, renews his efforts to escape, and again leaves his enemies almost at their former distance: but
this

this second attempt rendering him more feeble and languid than before, when his pursuers approach him, he is unable to outrun them with his wonted celerity. The wretched Stag, therefore, is now obliged to practise all his little arts of evasion, which sometimes, though but seldom, prove effectual. In proportion as his strength fails him, the ardour of pursuit is increased; he tracks more heavily on the ground; and this circumstance adding strength to the scent, the cries of the hounds are redoubled, and their approach is accelerated. In this dilemma the Stag takes refuge among the herd, and tries every artifice to shift the impending danger to one or other of his companions. Sometimes he sends forth a little Deer in his stead, and lies close himself, that the dogs may be induced to over-shoot him; and, at others, he breaks into one thicket after another in order to find Deer, rouses them, collects them together, and endeavours to put them on the tracks which he himself has made. All his old associates, however, shun him with the most vigilant circumspection, and leave him to his fate. Thus abandoned by his fellows, the devoted animal has recourse to other stratagems. He doubles and crosses such places as are least liable to retain his scent. He also runs against the wind, not only to cool himself, but the better to hear the voice and judge of the distance of his implacable enemies. It now appears evident that he is sorely pressed; particularly by his manner of running, which, from the bounding easy pace wherewith he set out, is converted into a stiff, short amble: his mouth also becomes black and dry, and entirely destitute of foam; his tongue hangs out; and the big round tear, according to some, is ready to start from his eye. When every other method of escape proves ineffectual, he at last takes to the water, and attempts to cross whatever lake or river he first approaches; and, while swimming, is at all imaginable pains to keep in the middle of the stream, lest, by touching the bough of a tree, or the herbage on the banks, he should communicate his scent to the hounds; nor does he ever swim against the current. In this emergency, too, he often conceals himself under the surface of the water, discovering only his antlers and the tip of his nose. All his resources being now at an end, he at last collects the feeble remains of his strength, in order to oppose those enemies from whom he is utterly unable to escape; and, turning towards them, threatens them with his horns, guarding himself on every side; and for some little time maintains the unequal conflict. In this situation, being enraged to desperation, he furiously attacks the first dog or man that approaches him, and not unfrequently dies revenged: at that time, however, the more cautious hounds avoid him till the whole pack is assembled; after which, being quickly surrounded, and brought to the ground, the huntsman winds a *treble mort* with his horn.

Such is the manner of hunting the Stag in England. But every country has a peculiar method of its own, adapted either to the nature of the climate, the face of the soil, or the genius of the people. The ancient way, however, was very different from that now practised. The huntsmen employed their dogs only to discover the game, not to rouse it: hence they were not very particular either as to the notes of their hounds, or the composition of their packs; and that dog who opened before he had discovered his game, was held in little estimation. They usually endeavoured, by

silent perseverance, rather to find out the retreat of the animal, and to surround it with nets and engines, than to arouse him with their united cries, and thus force him into the toils which they had previously laid for him. In succeeding times, the manner of hunting seems to have undergone some alteration; and in Sicily in particular, the subsequent mode was adopted. The nobility and gentry having been informed which way a herd of Deer passed, gave notice to each other, and appointed a day for a hunting-match. For this purpose, every person concerned was to bring with him a cross bow, and a bundle of staves shod with iron, having each of their heads bored, and a cord passing through and uniting them all. Between each of these staves was hung a bunch of crimson feathers, so disposed, that, on the gentlest breath of wind, they whirled round, and preserved a kind of fluttering motion. After this, the persons appointed to fix these staves withdrew, and concealed themselves in the neighbouring coverts; when the huntsman in chief, entering the fence with his hounds, roused the game with a full cry. The affrighted Deer, which fled on all sides, on approaching the lines, were scared by the fluttering of the feathers, and wandered about within this artificial paling, still awed by the shining and fluttering plumage that encircled their retreat. The huntsman, however, still pursuing, and calling each person by name as he passed his stand, commanded him to shoot the first, second, or third animal, according to his pleasure; and if any one of these persons pressed, or singled out a different creature from that which had been assigned him, it was regarded as a most disgraceful mischance. In this manner the whole herd was destroyed, and the day concluded with mirth and festivity.

There are but few varieties of the Red Deer or Stags of this country, and such are usually of the same size and colour; but the case is far otherwise in many other parts of the world, where they differ in their shape, size, horns, and colour. Those of China, according to Du Halde, are not taller than a common house-dog, and hunting them constitutes one of the principal diversions of the great. Their flesh, while young, is exceedingly tender; but, when they arrive at maturity, it begins to grow hard and tough. The method adopted by the Chinese to catch these animals is pretty singular. They carry with them the heads of some of the females stuffed, whose cry they imitate with great address: on which the male instantly makes his appearance; and, looking on every side, perceives one of these heads, which a hunter, who is himself concealed, holds up to view; and when the Stags, by means of this deception, have approached pretty near, the whole company of the hunters instantly surrounds, and often takes them alive.

The Corsican Stags are likewise very small, being not more than half the size of those which are common to Britain; their bodies are short and thick; their legs are short; and their hair is of a dark brown colour.

In the forests of Germany there is a kind of Stag, called by the ancients the *tragelaphus*; and, by the natives, the *bran*, or brown Deer. It is of a darker colour than the common Stag, but of a lighter shade on the belly; and having long hair on the neck and throat, on that account somewhat resembles the goat.

Animals of the Deer kind, though their species are not very numerous, seem to be disseminated

over all parts of the globe. The continent of America, in which neither the sheep, the goat, nor the antelope, have been originally bred, nevertheless produced Stags, and other animals of the Deer kind, in abundance. The Mexicans have a breed of white Stags in their parks, which, according to Buffon, are called Stags-royal. The Canadian Stags differ principally from those of Europe in having larger horns; and also in the direction of their antlers, which rather revert than project forwards. The same difference of size which is observable among our Stags, is also to be traced in those of the American continent; and, if we may credit Ruyfch, the natives have reduced them to the same degree of tameness that we have our sheep, goats, and black cattle: they send them forth in the morning to feed in the forests; and at the approach of night they are brought home again by those herdsmen who have superintended them during the day; and the inhabitants depend solely on the hind for their necessary supply of milk and cheese. Thus we see that an animal which appears to be formed only for the amusement of man, may with facility be brought to supply his necessities.

DEER, FALLOW. The Fallow-Deer and the Stag are as nearly allied as any two animals can possibly be. Alike in shape, disposition, fleetness, timidity, and the superb furniture of their heads, it might naturally be conjectured that they associated together; and yet no two animals avoid each other with more rooted aversion: they never herd in the same place; they never engender together, or form a mixed breed; and, even in those countries where Stags abound, the buck seems to be an utter stranger. In short, they form two distinct families, which, though so seemingly conjoined, are nevertheless very remote; and, though endowed with the same habits, retain a fixed animosity.

As Fallow-Deer are much smaller, so they are of a less robust and savage nature than those of the stag kind. They are seldom found wild in forests; but are generally bred up in parks, where they are either kept for the purposes of hunting or luxury, their flesh being greatly preferable to that of any other animal. Their horns are broad and palmated at their extremities, pointing a little forward, and branched on their hinder sides; they have two sharp and slender brow-antlers, and, above them, two small slender branches; whereas the horns of the stag are round in every part: in the one animal they are flatted and spread like the palm of the hand; and, in the other, they grow like a tree, every branch being shaped like the stem which supports it. The colour of the Fallow-Deer is more various than that of the stag, and its tail is longer; but, in other respects, the affinity is very close.

The horns of the buck, like those of all other animals of this genus, are shed annually, and repaired in the usual space of time: this change, however, happens later with respect to the buck, and consequently his rutting-season approaches nearer to the winter. At that period he is much less furious than the stag; nor does he exhaust himself so much through the violence of his ardour. He never quits his natural pastures in quest of the females, nor attacks other animals with indiscriminate rage: however, the males frequently combat with each other for the possession of the females; and it is not till after repeated conflicts that one buck obtains the sovereignty of the whole

band. A herd of Fallow-Deer is often observed to divide into two parties, and to engage each other with great ardour and obstinacy, as if ambitious of securing some favourite spot of pasturage, and of driving the vanquished party into the coarser and more sterile parts. These factions are headed by their respective chiefs, which are usually the two oldest and strongest of the herd; and these leaders always begin the engagement, the rest fighting under their direction. From the disposition and conduct which appear to regulate their mutual efforts, these combatants are no inconsiderable objects of curiosity: they attack each other in the greatest order, retire, rally, mutually afford their assistance, and never yield the victory on a single defeat; and such contests are generally renewed for several days successively, till one of the parties is obliged to give way, and to retreat to such a situation as is most likely to afford them safety and protection.

The Fallow-Deer is easily domesticated, and feeds on many articles which the stag refuses; by which means he preserves his venison better; and, even after rutting, does not appear entirely exhausted. He continues nearly in the same state through the whole year, though there are particular seasons in which his flesh is chiefly in esteem. This animal browses much closer than the stag; for which reason he is more prejudicial among young trees, which he often strips too closely for recovery. The young Deer eat much quicker, and with more eagerness, than the old; they seek the females at their second year; and, like the stag, are fond of variety. The doe, like the hind, goes with young above eight months, and commonly brings forth one at a time; but the two species differ in this circumstance, namely, that the buck arrives to perfection at his third year, and lives till his sixteenth; whereas the stag does not come to maturity till his seventh year, and lives till his fortieth.

Hunters have invented various names for the buck. In his first year he is called a *fawn*; in his second, a *pricket*; in his third, a *forel*; in his fourth, a *fore*; in his fifth, a *buck of the first head*; and, in his sixth, a *great buck*. The female, (the doe) in her first year, is called a *fawn*; and, in her second, a *tegg*.

The buck is hunted pretty much in the same manner as the stag, except that a less degree of skill is necessary with respect to the former than the latter. He is roused with more facility; and a sufficient judgment may be formed by the view and mark, as to what grove or covert he enters, because he seldom wanders from thence in order to change his layer or place of repose. When closely pursued, he makes towards some strong hold or thicket with which he is acquainted, either in the more shady parts of a wood, or the steep of some mountain; nor does he fly far before the hounds, nor cross and double like the stag: he will take the water, however, when reduced to extremity, but he can neither swim so long nor so swiftly as that animal. Indeed, the strength, cunning, and courage, of the buck, are much inferior to those of the stag; and consequently he affords neither so long, so various, nor so obstinate a chase: besides, being much lighter, he leaves a fainter impression, as well as less powerful scent; and the dogs in pursuit are frequently at a fault.

The buck being a more delicate animal than the stag, he is subject to greater varieties. In England,

England, there are two kinds of Fallow-Deer, which are said to be of foreign original; namely, the beautiful dappled kind, supposed to have been imported from Bengal; and the very deep brown sort, now so common in many parts of this kingdom, which were brought from Norway by King James I. who, while there, observed that they were so hardy, as to be capable of subsisting throughout the brumal season without fodder, even in that inhospitable climate. He first introduced some of them into Scotland, and from thence into his chaces of Enfield and Epping in the vicinity of the palace of Theobalds; that monarch being extravagantly fond of the diversion of hunting. Since that time, they have multiplied in many parts of the British empire; and England is at present more celebrated for its venison than any other country on the terraqueous globe.

The flesh of the French Fallow-Deer is much inferior, both in fatness and flavour, to that fed in English pastures. The Spanish Fallow-Deer have more slender necks, and are as large as stags, but of a browner colour. Labet informs us, that in Guiana, a country of South America, there are Deer without horns, and much smaller than those of Europe, but resembling them in every other particular. They are very lively, and excessively timid; and, when pursued, shelter themselves in situations where no other animals are capable of following them. The negro hunters watch for them in such narrow paths as lead to their usual places of pasture, and shoot at them as soon as they appear in sight. Their flesh, though seldom fat, is considered as a great delicacy.

All animals of the Deer kind seem equally useful, though their venison is by no means equally good. The uses to which their skins are applied are too well known to need mentioning; their horns, which are very serviceable in various mechanical operations, abound also with that kind of salt which forms the basis of the spirit of hartshorn; and, after these salts are extracted, their remains, when calcined, become a valuable astringent, and answer many salutary medicinal purposes.

DEER, ROE-BUCK. This animal, which inhabits Tartary and China, is also found in most parts of Europe, even as far northward as Norway; and Charlevoix says, that it is pretty common in North America. It was formerly a native of Wales and the northern parts of England; but at present the species no longer exists in any part of Great Britain, except in the Highlands of Scotland.

The Roe-Buck is one of the least of the Deer kind known in our climate, being only about three feet in length, and two in height. The horns, which measure eight or nine inches, are erect, round, and divided into three branches; the body is covered with very long hair, well adapted to the rigours of its mountainous retreats; the lower part of the hair is cinereous; near the extremities there is a narrow bar of black; and the points are yellow. The hair on the face is black, tipped with ash-colour; the ears are long, their insides being of a pale yellow, and covered with long hair; the chest, belly, legs, and insides of the thighs, are a yellowish white; the rump is a pure white; and the tail is very short. The figure of this little animal is very elegant, and its fleetness is equal to its beauty. It differs from the Fallow-Deer in having round horns; from the stag, in the smallness of its size and the proportionable paucity of its antlers; and from every animal of the goat kind, in annually shedding its horns.

The Roe-Buck seems naturally attached to shady thickets and rising slopes. Though far inferior, both in strength and size, to the stag, it is more beautiful, more active, and more intrepid. Its hair is always smooth, clean, and glossy; and, as it delights in the purest air, it frequents only dry situations. When its young are attacked by the stag, it boldly faces even that animal, and often comes off victorious. All its motions are elegant and easy; bounding with the utmost facility, and continuing the course with little apparent fatigue. It is also possessed of extraordinary cunning in avoiding the hunters; and, though its scent is much stronger than that of the stag, it more frequently makes good its retreat.

Nor does the Roe-Buck differ from the stag only in superior cunning, but also in its natural appetites, inclinations, and entire habitudes. Instead of herding together, these creatures live in separate families; the sire, the dam, and the young, associate together, and all strangers are excluded from their little community. Every other species of Deer is inconstant in affection; but the Roe-Buck never forsakes its mate; for being generally bred up together from their first fawning, they become so mutually attached to each other, as never afterwards to separate. Their rutting-season continues but fifteen days; namely, from the latter end of October to about the middle of November: during which, they are not, like stags, overloaded with fat; they have none of that strong odour which is peculiar to all others of the Deer kind; nor do they run to any of those furious excesses observable in stags, and which so materially alter their state. On such occasions, the Bucks only drive away their fawns, in order to make room for a succeeding progeny. However, when the season of love is ended, the fawns return to the does, and continue with them for some time; after which they relinquish them entirely, for the purpose of commencing an independent family of their own.

The female goes with young but five months and a half; which peculiarity alone is sufficient to distinguish this animal from all others of the Deer kind, whose time of gestation continues for eight months and upwards. In this respect, the Roe seems allied to the goat kind; though, as already observed, the discrimination between the two races is sufficiently distinct.

When the female is ready to bring forth, she forms a retreat in the thickest part of some wood; being no less apprehensive of the Buck, from which she then separates, than of the most ravenous beast. She generally produces two at a time; and sometimes, though but rarely, three. In about ten or twelve days, the young are able to follow their dam, except in cases of close pursuit, when their strength is by no means adequate to the fatigues of a continued chase. On such occasions, the affectionate tenderness of the dam is very singular; for, leaving her offspring concealed in some deep thicket, she exposes herself to the most imminent danger, flying before the hounds, and employing every artifice in her power to mislead them from those objects of her love in which all her happiness is centered. She courageously engages such animals as are nearly on an equality with herself; attacks the stag, the wild cat, and even the wolf; and her efforts for the protection of her young are not relinquished but with her life. These her struggles, however, frequently prove ineffectual; for numbers of the fawns are often taken alive by

the peasants; more are devoured by the dogs; and still more by the wolf, which has ever been considered as their implacable enemy. By such repeated depredations on this beautiful creature, the Roe-Buck is gradually becoming more scarce; and, in many countries, the whole race is totally lost.

These animals, which were once pretty common in England, are at present totally unknown; and, in a few years, the breed will probably be extinct in the Highlands of Scotland, the only part of Great Britain in which they are now to be found. Even in France, where they were formerly extremely numerous, they are at present confined to a few provinces; and, perhaps, in a century or two, the species will there be also exterminated. Buffon indeed observes, that in those districts where Roe-Bucks are chiefly found, they seem to maintain their usual numbers; and that the balance between their increase and destruction is held pretty even: however, the number is in general well known to decrease; for, wherever cultivation takes place, beasts of nature are known to retire. Many animals which once flourished in the world may now be extinct; and the descriptions of the more ancient naturalists, though taken from the life, are frequently regarded as fabulous, because their archetypes are no longer extant.

Those hunters who characterize only such beasts as fall under their cognizance, have given names to the different kinds and ages of the Roe-Buck, as well as to those of the stag: thus, the first year they call it a *hind*; the second, a *gyrle*; and, the third, a *hemuse*; but, since the animal itself has been extinct in this country, these appellations have become obsolete.

The fawns continue to follow the Deer eight or nine months collectively; and, on separating, their horns begin to appear, simple and without ramifications the first year, as in those of the stag kind: these they shed at the end of autumn, and renew them during the winter; differing from the stag in this particular, which latter sheds its horns in the spring, and renews them in the summer. When the Roe-Buck has compleated the furniture of its head, it rubs its horns against trees, after the example of the stag, and thus divests them of their rough skin, and those blood-vessels which no longer contribute to their nourishment and growth. When these fall, and new ones begin to appear, this animal does not, like the stag, retire to the covert of some wood, but continues to frequent its usual haunts, only stooping with its head, in order to avoid striking its horns against the branches of trees, the concussions of which it seems to feel with exquisite sensibility.

As the growth of the Roe-Buck, till its arrival at maturity, is much more rapid than that of the stag, so its life is proportionably curtailed. It seldom lives more than twelve or fifteen years; and, if kept in a state of domestic servitude, its existence is abridged to seven or eight. Being of a very delicate constitution, it requires variety of food, air, and exercise. It must be paired with a female, and kept in a park of considerable extent. It can easily be subdued, but never perfectly tamed. No arts can teach it familiarity with its feeder, much less to shew any attachment to him; but it always retains some portion of its natural wildness. It is subject to timidity from the slightest occasions; and, in attempting to escape, it sometimes dashes itself with such violence against the walls of its inclosure, that it injures its limbs so as to be ut-

terly disabled. Whatever care is taken to reclaim this creature, it can never be fully relied on; and it is liable to frequent fits of capricious fierceness, sometimes attacking its supposed enemies with no small degree of force and impetuosity.

The voice of the Roe-Buck is neither so loud nor so frequent as that of the stag. The young ones have a peculiar way of calling to the dams, which the hunters imitate with such exactness, as frequently to allure them to their destruction; and, on particular occasions, they become as it were intoxicated with their food; which, during the spring, is supposed to ferment in their stomachs. In summer, they keep close under covert of the forests, and seldom venture abroad, except in very warm weather, in order to allay their thirst at some neighbouring stream. In general, however, they are satisfied with the morning dew, and rarely gratify their appetites at the expence of their safety. They are generally observed to prefer the tender branches and buds of trees to corn or other vegetables; and it is universally allowed, that the flesh of a Roe-Buck near two years of age is one of the greatest known luxuries; though, perhaps, its scarcity may somewhat enhance its value.

This animal is more common in America than in Europe, and the varieties are more numerous. With us, indeed, there are but two known ones; the red, which is the larger sort; and the brown with a spot behind, which is inferior in size. In Louisiana, where the Roe-Buck is very common, the inhabitants in a great measure subsist on its flesh, which tastes like well-fed mutton. It is also found in Brazil, where it obtains the name of *cuguacu* apara; but it differs from the European breed in some slight deviations in the horns. This animal is also said to be found in China; but those authors who have described it, seem to confound it with the musk-goat, an animal of a very different nature.

DEER, MOOSE, or ELK. This animal is a native both of the old and new world; being known in Europe under the name of the Elk, and in America under that of the Moose-Deer. It is sometimes, though rarely, caught in the forests of Germany and Russia; but it is very numerous in North America, where the natives trace it through the snow. However, the accounts of this animal are extremely various; some making it as large as the elephant, and others no bigger than the horse.

The stature of the Moose-Deer being its principal peculiarity, it were to be wished that naturalists had been sufficiently explicit in their descriptions of it. If we were to judge of the size of this animal from some horns which have at times been casually dug up in Ireland, it might reasonably be conjectured to be at least ten feet high. Goldsmith informs us, that he has seen one of those horns, which measured ten feet nine inches from tip to tip; and the accurate Pennant says, that he met with one, in the house of the Hudson's Bay Company, which weighed fifty-six pounds, was thirty-four inches in length from tip to tip, and the breadth of the palm was thirteen inches and a half. Between these two accounts there is an amazing difference; and unquestionably there was a great disparity in the animals which supported such horns. From the dimensions of the former, it appears that an animal of an extraordinary size would be required to produce them. No small degree of strength would be necessary to sustain a head having such extensive and heavy antlers;

antlers; and it is not to be doubted that the bulk of the body must have been proportionable to the size of the horns. As to the more noble animals, Nature observes a perfect symmetry; and it would be unjust to suppose that she failed in this particular instance.

A young female, kept a few years since at the late Marquis of Rockingham's at Parsons Green, is thus described by the ingenious Pennant. 'It was about a year old, and measured five feet, or fifteen hands, to the top of the withers; the head alone was two feet long; the length of the animal, from the nose to the tail, was about seven feet; the neck was much shorter than the head; the mane was thick, short, erect, and of a light brown colour; the eyes were small; the ears were one foot long, very broad, and slouching; the nostrils were very large; the upper lip, which was square, projected considerably over the lower; and in the middle there was a sulcus, so deep as to appear almost bifid: the nose was broad; under the throat there was a small excrescence, from whence depended a long tuft of coarse black hair; the withers were very high; the fore-legs were three feet three inches long, and from the bottom of the hoofs to the end of the tibia two feet four inches; the hind-legs were much shorter than the fore ones; the hoofs were very much cloven; and the tail was very short, dusky above, and white beneath. The colour of the body in general was a hoary black; but about the face there was a greater portion of grey than in any other place.' This animal, which was brought from North America, was called the Moose-Deer. A male of this species, and the horns of others, having been imported into England of late years, prove this creature, on comparing it's horns with those of the European Elk, to be one and the same animal.

As the female animal above described was only one year old, we may reasonably conclude that the Moose-Deer, especially in America, grow to an enormous size. Nevertheless, the accounts given by Jocelyn and Dudley of the size of the American Moose-Deer seem to be greatly exaggerated; the former asserting, that some are found twelve feet high, and the latter making it eleven: however, Charlevoix and others describe it as being of the size of the horse, or the Auvergne mule, which is a very large species; and Jocelyn and Dudley have probably been too credulous, with respect to the relations of those hunters and Indians who were fond of the marvellous. It is indeed certain, that the Elk is common to both continents; and that the American one, having the advantage of ranging in more extensive forests, and of more luxuriant food, grows to a larger size than the European. In all quarters of the world, however, it is timid and gentle, content with it's pasture, and unwilling to disturb any other animal when it can obtain a supply for itself.

In the year 1742, a female of the European kind was exhibited at Paris, which was caught in a forest of Red Russia. Though then young, it was six feet seven inches high; from the tip of the nose to the insertion of the tail, it was ten feet; and the circumference of the body was eight feet. The hair, which was long and coarse, resembled that of the boar; the ears were eighteen inches long, and not unlike those of the mule; under the throat there was a beard like that of the goat; a bone, as large as an egg, projected in the middle of the forehead between the horns; and it made use of it's

fore-feet as a defence from the assaults of it's enemies. It's exhibitors asserted, that it ran and swam with astonishing swiftness, and that it was extremely fond of water. It's daily allowance of food was thirty pounds of bread, besides hay; and it's beverage about eight pails of water. It was docile and familiar, and sufficiently submissive to it's owner.

The foregoing account circumstantially differs from that we have received of the Moose, or American Elk. Of this there are two kinds, namely, the common light grey Moose, which is not very large; and the black Moose, which grows to an enormous height. Dudley observes, that a certain female of the black Moose kind, of the age of four years, was within one inch of seven feet high. However, all animals of this kind have flat palmated horns: at the head there is a short trunk, but it soon spreads to at least a foot in breadth, and is furnished with a kind of small antlers like teeth on one of the edges. In this particular all animals of the Elk kind agree, as well the European Elk as the grey and black Moose-Deer.

These animals delight in cold countries, feeding on grass in summer, and on the bark of trees in winter. When the ground is wholly covered with deep snow, the Moose-Deer herd together under tall pine-trees, from which they strip the bark, and remain always in those parts of the forests which yield them that kind of subsistence. At these seasons the natives prepare to hunt them; and particularly when the sun begins to melt the snow by day, and is frozen again at night; for then the icy crust which covers the surface of the snow is too weak to support their weight, and therefore retards the motions of the animals. The Indians no sooner perceive a herd of them at a distance, than they prepare for the pursuit of one of them; which is not, as in some countries, the amusement of an hour, but is attended with toil, difficulty, and danger. The timorous animal, on observing the first approach of it's enemies, immediately endeavours to escape, but sinks at every step. Still, however, it pursues it's course maugre a thousand obstacles: the snow, which is often upwards of four feet deep, yields to it's pressure, and impedes it's speed; the sharp ice wounds it's feet; and it's towering horns are frequently entangled in the branches of trees: these, however, are broken down by the animal with facility; and, in whatever path the Moose-Deer runs, it is easily traced by the continual snapping of these branches. In this manner the chase is sometimes continued for a whole day; and, at others, for two or more successive days; the pursuers being often no less excited by famine, than the pursued accelerated by fear. Perseverance, however, generally succeeds; and the Indian who first comes near enough, darts his lance at the Moose-Deer with unerring aim, which sticking in the poor creature's body, encreases it's efforts to escape. The devoted animal now proceeds till it's pursuers once more overtake it, and the blow is repeated: on which it again summons forth all it's remaining vigour, in order to get a-head; but being at last quite worn out through fatigue and loss of blood, it sinks at once, and becomes an easy prey.

The flesh of the Moose-Deer, which is extremely well tasted and nutritive, well repays the exertions of the hunters. The hide is strong, and so thick, that it is generally bullet-proof: however, it is soft and pliable; and, when tanned, is exceedingly light, yet extremely durable. The fur is a light grey in some, and blackish in others; and, when

viewed through a microscope, appears spongy like a bull-rush, and is smaller at the roots and points than in the middle; for which reason it lies very flat and smooth; and, though ever so much ruffled, still returns to its former state. The horns also are very valuable, inasmuch as they are applied to all those purposes for which hartshorn is beneficial.

This animal is said to be subject to the epilepsy, as it frequently falls down when pursued, and thus becomes an easier prey; on which account some have imagined the hinder hoof to be possessed of an antidote against all epileptic disorders. This, however, may be regarded as a vulgar error; as well as the petty fiction of the animal's curing itself of that disorder by the application of its hinder hoofs to its ears.

The pace of Moose-Deer is somewhat singular, being a high shambling trot; but they move with great celerity. In Sweden, they were formerly much used in drawing sledges; but, as the escape of criminals was frequently effected through their means, the use of them has been long prohibited under very severe penalties.

Though Moose-Deer are in general inoffensive animals, during the rutting-season, and when wounded, they become very furious, and attack whatever comes in their way with the united efforts of their horns and hoofs.

DEER, REIN. The Rein-Deer, which is the most useful, as well as extraordinary, of all animals of the Deer kind, inhabits the frigid regions of the north: and all attempts to reconcile it to more southern ones have proved ineffectual; for, when transported from its native soil to a more propitious one, it soon feels the influence of the change, and, by a gradual decline, expires in a very few months. Nature seems to have fitted this animal entirely for the necessities of that hardy race of mortals who live near the pole. It is met with farther north than any other hoofed quadruped. In America, it is found in Spitzbergen and Greenland, but not farther south than Canada; in Europe, it inhabits Samöieda, Lapland, and Norway; in Asia, it traverses the north coast as far as Kamtschatka, and the interior parts as low as Siberia; but, in Africa, it is totally unknown; nor does it indeed appear in any country where other animals can supersede its utility. From this creature alone the natives of Lapland and Greenland supply most of their wants. It answers the purposes of a horse, in conveying themselves, as well as their humble furniture, from one mountain to another; those of the cow, in affording them milk; and those of the sheep, in furnishing them with a warm kind of cloathing perfectly adapted to the climate: the flesh serves them for food; and the tendons for bowstrings; which last, when split, supply the want of thread. Thus, from this animal alone, the inhabitants of those hyperborean regions reap as many advantages as we derive from many; so that Providence, as a compensation for the numerous local disadvantages which they experience, has given them this faithful domestic, more patient, as well as more beneficial, than perhaps any other on earth.

The horns of the Rein-Deer are large, but slender, bending forwards, and palmated towards their tops; with brow-antlers broad and palmated. Both the male and female are furnished with horns; but those of the latter are of inferior dimensions, and have fewer branches. The height of a full-

grown Rein-Deer is about four feet six inches; it is lower, and stronger built, than the stag; its legs are shorter and thicker; and its hoofs are also broader. Its hair is very thick; its ears are large; and it has always a black space round the eyes. Its pace, which is rather a trot than a bounding motion, it is capable of continuing for a whole day, without appearing to be fatigued. Its hoofs are cloven and moveable; and, in walking, it spreads them abroad, in order to prevent its sinking in the snow. When it proceeds on a journey, it lays its horns on its back; while there are two branches which overhang its forehead, and almost cover its face.

The following circumstance seems peculiar to this animal and the elk; namely, that a pretty loud cracking noise is heard as they move along: this sound arises from their manner of treading; for, as each of the animals rests on its cloven hoof, it spreads on the ground, and the two divisions separate from each other; but, when it is lifted up, the divisions close again, and, striking against each other, occasion the above noise.

When the Rein-Deer first shed their hair, they are of a brown colour; but, in proportion as the summer season advances, their hair begins to grow whitish; and at last they are nearly grey. Their necks are covered with long depending hair, coarser than that on any other part of their bodies; and their feet, just at the insertion of the hoofs, are surrounded with rings of white.

After the rutting-time, which happens towards the latter end of November, these animals shed their horns, which are not completely furnished again till towards autumn. The females always retain theirs till they bring forth; and, if they prove barren, which is not unfrequently the case, they do not shed them till winter. The castration of Rein-Deer does not prevent the shedding of their horns; but the time of this annual divestment is accelerated or retarded according to the condition of the animals.

In Lapland, where these creatures constitute the principal wealth of the natives, some of them frequently possess upwards of a thousand head in a single herd. The mountainous part of this country is sterile, bleak, and totally uninhabitable during the winter; but, in the summer season, it is the most desirable situation of this inhospitable climate, and by far the most populous. The Laplanders generally reside on the declivities of the mountains, in small cottages, three or four of which are erected contiguous to each other; and in them they lead a cheerful, innocent, and social life. On the approach of winter, however, they are obliged to descend into the plains, each individual bringing with him his whole herd, and leading it to those spots where the pasturage appears most luxuriant.

The woody part of the country is still more desolate and forbidding; for there the whole face of nature presents a rueful scene of trees devoid of fruit, and plains without verdure. As far as the eye is capable of reaching, nothing is to be seen, even in the midst of summer, but barren fields, covered only with a kind of moss almost as white as snow; no grass, no agreeably diversified landscapes, appear, but only a few solitary pine-trees, which have escaped the frequent conflagrations by which the natives burn down their forests. What is still more extraordinary, as the whole surface of the earth is clothed in white, so, on the contrary, the forests

forests seem to the last degree black and gloomy: while one species of moss gives the fields a snowy appearance, another kind blackens the trees, and conceals their verdure. This moss, however, which deforms the country, serves as the only support of the Rein-Deer.

As soon as the summer begins to appear, the Laplander, who had fed his Rein-Deer on the lower grounds during the winter, drives them up the mountains, leaving the woody country, and the low pasture, which at that season are in a most deplorable condition. The gnats, bred by the vivifying heat of the sun in the marshy bottoms and weedy lakes with which this country abounds more than any other part of the world, are then all on the wing, and darken the atmosphere, like clouds of dust in a windy day. The inhabitants, at this season, are obliged to daub their faces with pitch mixed with milk, in order to shield them from the depredations of these noisome insects; and every place is then so much infested by them, that the natives dare hardly open their mouths lest they should be suffocated; for these vermin, from their numbers and minuteness, enter their nostrils and eyes, and scarcely suffer them to be at ease for a single moment. But these insects are chiefly inimical to the Rein-Deer; for the horns of these animals being then in their tender state, and possessed of extreme sensibility, a famished swarm of these gnats instantly settles on them, and drives the poor animals almost to distraction. In this extremity, there are two remedies to which these quadrupeds, as well as their proprietors, are obliged to have immediate recourse. The one is, for both parties to shelter themselves near a large fire of tree-moss adjoining to their cottage, the smoke of which extending to a considerable distance, repels the gnats; and thus one inconvenience excludes another and greater. The other consists in ascending to the summits of the highest mountains, where the air is too thin, as well as too cold, for these insects to exist: there the Rein-Deer are often glad to continue for whole days together, though almost without any subsistence, rather than venture downward to lower situations, where, though they might probably meet with food congenial to their appetites, they would be destitute of every defence against their relentless persecutors.

But gnats are not the only insects which molest these useful animals; there is a species of gadflies which are still more formidable to them. These insects are bred under their skins, where their eggs have been deposited the preceding summer; and they are no sooner produced as flies, than they again endeavour to deposit their eggs in some situations similar to those from which they before emerged. Whenever, therefore, these flies appear over a herd of Rein-Deer, they put the whole flock in motion; who being aware of their enemies, exert all their little arts either to avoid or terrify them. Their endeavours, however, are too generally without success; for the gadflies deposit their eggs with great facility; which burrowing under their skins, lacerate them in various places, and often produce disorders for which the natives have not as yet discovered any proper specific.

In the mornings, as soon as the Lapland herdsmen drive their Deer to pasture, they employ their utmost care to hinder them from scaling the summits of the mountains, where there is generally little or no food, but to which the animals eagerly strive to ascend, in order to be at a distance from

their adversaries. At such times there are usually strong contests between the dogs and the Deer; the latter endeavouring to climb the hills, and to gain their tops, which are perpetually covered with snow; and the former driving the latter downward to those spots where their food is most plentiful, and where both the men and dogs guard them throughout the whole day with the utmost precaution, and drive them homeward at the proper milking periods.

The season of parturition is about the middle of May; and the females continue to give milk till about the middle of October. Every morning and evening during that interval, the herdsmen return to their cottages with their Deer, for the purpose of milking them; in which the women having previously lighted up smoky fires, thereby repel the insects, and keep the Rein-Deer in a quiet state. Every female affords nearly one pint of milk; which, though thinner than that of the cow, is nevertheless sweeter and more nourishing. After being milked, the herdsmen drive them back to pasture; for they neither fold them, house them, nor provide for their subsistence, during the winter, nor improve their pasture by cultivation.

On the return of winter, when the gnats and flies are no longer to be dreaded, the Laplander, as already observed, descends into the lower grounds; and, as there are but few to dispute the possession of that desolate country, he has then a very extensive range for his herds. Their chief, and almost only food, at this season, is the white moss already mentioned, which, from its supplying these animals with food, is called lichen rangiferinus. This plant, though displeasing to the spectator who has been accustomed to more propitious climates, is esteemed by the natives as one of the choicest benefits and most indulgent gifts of nature. While their fields are clothed with moss, they envy neither the fertility nor the verdure of a southern soil; and, warmly habited in their Deer-skin cloaths, with shoes and gloves of the same materials, they intrepidly drive their herds along the deserts, ignorant of any higher luxuries than those which their milk and smoke-dried flesh afford them. Inured to the climate, they sleep in the midst of ice; or, waking, dose away their hours amidst the fumes of tobacco; while their faithful dogs perform the parts of active substitutes, and keep their herds from straggling. The Deer, in the mean time, with instincts adapted to the soil, search out their food, though buried under the deepest snows: they turn it up with their noses, after the manner of swine; and, even though the surface of the snow be frozen, their hides are so very hard in those parts, that they easily overcome these difficulties. It sometimes however happens, though but seldom, that the winter commences with rain; and a frost ensuing, covers the whole country with a glazed crust of ice. In that case, both the Laplander and his Rein-Deer are in a manner undone; for having no provisions laid up against accidents, his only resource is to cut down such large pine-trees as are encrusted with moss; which affording but a very scanty supply, the greatest part of the herd inevitably perishes, without any possibility of assistance. It sometimes also happens, that even this supply cannot be had; for the Laplanders often burn down their woods, in order to improve and fertilize the soil which produces the moss; and in this case nothing but ruin presents itself, and hope sets in despair.

Thus

Thus the pastoral life, which is no longer known in populous and well-cultivated countries, is still continued near the pole. Neither the coldness of the winter, the length of the nights, the wildness of the forests, nor the rambling disposition of the herd, interrupt the regular tenor of the Laplander's guiltless life. By night as well as day he attends his favourite cattle, and is but little affected even in a season whose inclemency would prove destructive to the enervated sons of warmer climates. He neither manures his ground, nor brings in his harvests; nor is he the hireling of another's luxury, for all his labours tend to obviate the necessities of his own situation; and these he undergoes with cheerfulness, as he is certain of reaping all the fruits of his industry. If, then, it was our business to compare the Laplander with the peasant of more southern climes, we should have little reason to pity his situation: the climate which he inhabits is rather terrible to us than to him; and, in other respects, he is blessed with liberty unbounded, and plenty adequate to the utmost of his desires. His Rein-Deer, in which all his cares centre, supply him with all that simple nature requires, and even afford him every convenience which his situation admits of.

The Rein-Deer of this country are of two kinds, namely, the wild and the tame. The wild are larger, stronger, and more mischievous, than the tame: their breed, however, is preferred to that of the latter; and the female of the tame kind is often sent into the woods, from whence she returns home impregnated by a male of the wild kind. These are the best adapted for drawing of sledges, to which they are early accustomed by the Laplanders, who yoke them to those carriages by means of straps encircling their necks, and depending between their legs. These sledges, which are exceedingly light, have their bottoms shod with the skins of young Deer, the hair being turned to slide on the frozen snow. Those persons who sit in these vehicles guide the animals by the help of cords fastened round their horns, encouraging them to proceed by their voices, and spurring them on with goads. Some of the wild breed frequently prove refractory, and turn upon their drivers; who on such occasions have no other resource but to cover themselves with their sledges, and to suffer the animals to vent their fury on them.

But no creatures can be more active, patient, and alert, than the tame Rein-Deer; for, when urged, they will trot nine or ten Swedish miles, or between fifty and sixty, at one stretch. However, in such cases, the poor obsequious animals fatigue themselves to death; and, if not prevented by an early dispatch, will die in a day or two afterwards. In general, they are capable of travelling about thirty miles without either halting or sustaining any damage from their efforts. This mode of journeying, which is the only one in Lapland, can only be practised in winter, when the snow is glazed over with ice; and, though it is a speedy method of conveyance, and indeed the only alternative in that country, it is not effected without danger, inconvenience, and trouble.

To render these useful animals more obedient and beneficial, they are generally castrated; which operation the Laplanders perform with their teeth. Such as have undergone castration, are more easily fattened than others; as well as more capable of drawing their sledges. One male is usually left entire for every six females; and these continue in

rut from the feast of St. Matthew to near Michaelmas. At this period their horns being perfectly burnished, their contests with each other are very fierce and obstinate. The females do not begin to generate before they arrive at the age of two years; after which they continue breeding regularly every year till they become superannuated. They go with young about eight months, and generally bring forth two at a time. The affection of the dam for her young is very remarkable; for, when they happen to be separated from her, she will return from pasture, continue calling round the cottage for them, and never desist till they are laid, either dead or alive, at her feet. The fawns are at first of a light brown colour; but, as they grow up, they become darker; and at last the old ones are of a brown almost approaching to blackness. The young follow their dams two or three years; and do not arrive at their full growth till four, when they are broke, and trained to drawing the sledges; in which employment they continue serviceable for four or five years longer. The longest period of their existence seems to be limited to fifteen or sixteen years; and, when they have attained their proper age, the Laplanders generally kill them for the sake of their flesh and hides: this they perform by thrusting their knives through the hind-parts of their necks into their spinal marrow, on which the animals instantly fall; and the arteries which lead to their hearts being cut, the blood discharges itself into the cavities of their breasts.

Scarcely any part of the Rein-Deer can be deemed useless. As soon as it begins to wax old, and some time before the general season of love, it is killed, and the flesh dried in the air: it is also sometimes hardened by means of smoke, and laid up for travelling provision when the natives migrate from one part of the country to another. During the winter, these animals constitute the only food of the Laplanders; and every four individuals in a family are allowed one Rein-Deer for their subsistence. In spring, the natives spare their herds as much as possible, and draw the principal part of their nourishment from the sea. In autumn, they live wholly on fowls, which they either kill with cross-bows, or catch in gins: nor is this a scanty supply; for, at that season, sea-fowls arrive in such abundance, that the ponds and springs are entirely covered with them. These birds, which are not very timid, and generally become an easy prey, are chiefly allured to such places by those swarms of gnats which, as already observed, overspread the whole country during the summer season; and now recompense their injurious treatment of the Rein-Deer by inviting such vast numbers of these fowls as abundantly supply the natives with food for at least one-fourth part of the year.

The milk of the Rein-Deer, when fresh, is warmed in a cauldron, and thickened with runnet; and then the curd is pressed into cheeses, which are small, and well-tasted: these cheeses never breed mites, as in other countries; and probably they are unknown in Lapland. After this process, the whey which remains is warmed up again, and becomes of a consistence as if thickened with the whites of eggs. On this simple food the Laplanders feed for a considerable part of the summer. They seldom make any butter, their milk affording a very small quantity of cream; but what is turned to this purpose strongly resembles suet both in taste and consistence. Milk is never kept in Lapland till it becomes sour; nor does it constitute any part

of that variety of dishes so common in more southern countries. The only delicacy procured from it arises from the boiling it up with wood-sorrel, and coagulating it; after which the whole is put into calks, or Deer-skins, and deposited under-ground as a reserve for the winter season.

The skin of this animal, however, is still more valuable than either of the above acquisitions. From that part of it which covers the head and limbs, are made those strong snow-shoes which shield the feet of the natives from the inclemencies of the brumal seasons. Of the other parts they make garments, which are extremely warm, and cover them from head to foot: the hair is worn on them externally; and they are sometimes lined internally with the fur of the glutton, or some other animal of the climate which is provided with a warm skin. Their beds are likewise composed of the skins of the Rein-Deer; and are spread, on each side of the fire, upon some leaves of the dwarf birch-tree; which, without any other addition, afford a pretty comfortable lodging. Numbers of garments, formed of the skins of Rein-Deer, are annually imported into the more southern parts of Europe, where they are found so effectual in repelling the cold, as to be worn even by persons of the highest quality.

Though Rein-Deer are very vigorous and hardy animals, they are obnoxious to peculiar diseases. It has already been observed what injuries they sustain from gnats and gad-flies. Their hides are often pierced in various parts by the latter of these insects; and numbers of them die in their third year from this sole cause. Their dugs also frequently burst in different places, when blood is emitted instead of milk. They sometimes contract a loathing to their food; and, instead of eating, stand still and ruminate. They are also, like the elk, troubled with vertigoes; and, in that case, usually run round and round till they expire. The Laplanders judge of their state by the manner of their turning: if they move to the right, they suppose their disorder to be but slight; but, if to the left, they then deem them incurable.

Rein-Deer are also subject to ulcers near their hoofs, which disqualify them either for travelling or keeping among the herd. But the most fatal disorder incident to these animals, is that which the natives call suddataka, to which they are liable at all seasons. The instant this disease attacks them, the poor creatures breathe with great difficulty; their eyes begin to stare, and their nostrils to expand: they then also acquire an unusual degree of ferocity, attacking every object that comes in their way with indiscriminate fury. Still, however, they continue to feed, as if in perfect health; but they desist from chewing their cud, and lie down more frequently than before. In this manner they continue, daily consuming and becoming more emaciated, till at last they die through mere inanition; nor has a single instance ever occurred of one of these animals having survived this cruel disorder, which, notwithstanding it has but lately made its appearance in that part of the world, has spoiled whole provinces of these valuable creatures. This malady being very contagious, the instant the Laplanders perceive any animals belonging to their flocks infected, they immediately dispatch them. When dissected, a frothy substance is found in their brains, and round their lungs; their intestines are lax and flabby; and the spleen is almost totally wasted.

Besides the maladies natural to Rein-Deer, they

are liable to many adscititious evils. Bears, and other wild beasts, often commit depredations on the herds; and the creature called the glutton, in particular, is the most dangerous and fatal enemy. The contests between these irreconcilable animals are not less frequent in North America than in Lapland; in the former of which countries the Rein-Deer is called the caribou, and the glutton the carcajou: this animal, which is not larger than a badger, frequently lies unobserved, for whole weeks together, among the branches of some spreading tree; and, whenever the wild Rein-Deer is passing underneath, it instantly drops down, and fixes its teeth and claws in the creature's neck. In vain does the wounded animal fly for protection to the thickest shades of the forest; the glutton still maintains its hold; and, though it frequently loses some part of its skin and flesh by rubbing against the surrounding trees, it seldom relinquishes its object till it has obtained a complete victory.

DEER, VIRGINIAN. The Virginian Deer are about the size of the English Fallow-Deer, and of a light brown colour. Their tails are longer than those of the English bucks; and they appear to be a distinct species, peculiar to America. They are gregarious as well as very restless animals; but they are not remarkable for their ferocity. Their flesh, though arid, is of the utmost importance to the Indians, who dry it for their winter provision. Their skins form a valuable article of commerce, vast numbers of them being annually imported into Great Britain. In the northern parts of America, they feed, during the long and severe winters to which that climate is subject, on that kind of moss which depends in long strings from the trees. Their horns, which are slender, and bend greatly forwards, have numerous branches on their interior sides; but they are destitute of brow-antlers. These animals, which are tamed with great facility, may be trained to range the woods during the day, and to return to their owners at night.

DEER, SPOTTED AXIS. The body of this animal, which is about the size of the Fallow-Deer, and of a light red colour, is beautifully marked with white spots; and along the lower part of the sides, next the belly, there is a line of white. The tail, which is about the length of that of the Fallow-Deer, is red above, and white beneath. The horns are slender, and triple-forked; the first branch rises near the base, the second near the top, and both point upwards.

The Spotted Axis Deer inhabits the banks of the Ganges, and the islands of Ceylon and Java. It is capable of enduring the rigours of an European climate, and has been known to breed in Holland. It is a very tame animal, and possesses the sense of smelling in an exquisite degree: and, though extremely fond of bread, it will not touch any that has been breathed on; a peculiarity also observable in some other animals.

DEER, GREAT AXIS. This animal is of a reddish brown colour; and its horns, which are trifurcated, very thick, strong, rugged, and of a whitish hue, measure two feet four inches between tip and tip. These kind of Deer inhabit the islands of Borneo and Ceylon; and, according to some naturalists, are as tall as horses. The Dutch call them elanden, or elks. In Borneo, they are found in low marshy places; for which reason they are called, in the Javan and Malayan tongues, Mejangnan Banjoe, or water-stags.

There is another species of these animals of an inferior

inferior size, furnished with rough and strong trifurcated horns. They are of a light red colour, without any spots, but sometimes varying to white; and are esteemed very curious. They inhabit the dry mountainous forests of Ceylon, Borneo, Celebes, and Java, in large herds. In Java and Celebes, where they grow remarkably fat, there are usually great hunting-matches; and numbers of them are frequently killed at one time. Their flesh is cut into small pieces, and dried in the sun.

DEER, PORCINE. The height of this animal, from the shoulders to the hoofs, is about two feet two inches; and it's length, from the tip of the nose to the insertion of the tail, is three feet six inches. It's horns, which are slender and trifurcated, are thirteen inches long, and six inches distant at the base. The head is about ten inches long; the body is thick and clumsy; the legs are fine and slender; and the tail is about eight inches in length. The upper parts of the neck, body, and sides, are of a brown colour; but the belly and rump are lighter. This animal, which derives it's name of Porcine, or Hog-Deer, from the extraordinary thickness of it's body, has been occasionally imported into this country from India; and it is also found in the island of Borneo.

DEER, RIB-FACED. This species is so called from having three longitudinal ribs, which extend from the horns to the eyes. The horns, which are placed on a bony projection, are elevated three inches above the scull, and covered with hair; they are also trifurcated, the upper fork being hooked; and from the upper jaw on each side there hangs a kind of tusk. This creature bears a pretty strong resemblance to the Porcine Deer, and is somewhat smaller than the roe-buck. It is a native of Java and Ceylon; and, in the Malayan tongue, it is called kidang. These kinds of Deer are very numerous in those countries; and their flesh is much esteemed for it's delicacy and flavour.

DEER, TAILLESS. The colour of this animal resembles that of the roe-buck; and it's whole coat, which is excessively thick, appears quite rough and erect in the spring season. The horns are trifurcated, and very rugged at their bases; the hair about the eye-lids and orbits is long and black; the ears are internally covered with a very thick fur; the nose is black; and a broad cutaneous excrescence above the anus supplies the want of a tail.

These animals are very common in all the temperate parts of Russia and Siberia, especially the shrubby mountainous tracts beyond the Wolga; and also in the mountains of Hyrcania. At the approach of winter, they descend into the open plains, and their hair at that season assumes a hoary appearance. The Persians denominate this species of Deer the ahu; the Tartars, the farga; and it is at present considered as the Scythian antelope by the inhabitants of the Russian empire.

DEER, MEXICAN. This creature is about the size of the European roe; the colour of it's hair is reddish; and, when young, it is spotted with white. It has strong, thick, rugged horns, bending forwards, ten inches long, and nine between point and point. The head is large; the neck is thick; and the eyes are full and bright.

This species, which inhabits Mexico, Guiana, and Brazil, is found not only in the interior parts of these countries, but also on the borders of their plantations. It is very distinct from the roe of the old continent; and it's venison is inferior to that of Europe.

DEER, GREY. This species seems to be very obscure; nor are naturalists agreed whether it is a Deer, a musk, or a female antelope; especially as the animals of this kind mentioned by Linnæus are described as having no horns. It is of a grey colour, and about the size of a cat; a line of black appears between the ears, and a large black spot above the eyes; and there is a line of the same colour on each side of the throat, pointing downwards. The middle of the breast is black; the fore-legs, and the sides of the belly as far as the hams, are marked with black; the ears are long; and the under-side of the tail is black.

DEMOISELLE OF NUMIDIA. This bird receives it's name from it's particular actions in walking, which (by it's frequent leaping and turning round, and varying the motion of it's head at the same time) resemble dancing. According to the Royal Academy at Paris, it measures three feet and a half from the tip of the bill to the end of the feet, when extended; but the ingenious Edwards, who has given a very accurate description of it from the life, says that it appeared to him to exceed the Parisian measure. Considered as a bird of the crane kind, the bill is short, and terminates in a point, the thicker part next the head is greenish, in the middle it gradually becomes yellow, and the point is red; the irides are of a shining red colour; and the head and upper part of the neck are black, except the crown, which is grey. Exactly behind the eye there is a tuft of long, soft, white feathers, tending backwards, and depending behind in a very graceful manner. The fore-part of the neck is covered with soft, long, and slender black feathers, which fall on the breast in a very pleasing form, sometimes close, and at others detached like a lady's handkerchief. The hind-part of the neck, the whole body, the wings, and the tail, are of a blueish ash-colour, except the greater quills, which are dusky, or rather black; and the tips of the tail-feathers are also blackish. The legs are pretty long; the feet are of a moderate size, and entirely covered with dark or blackish scales; the claws are black; and the legs are destitute of feathers a considerable way above the knees.

DENTALE. An Italian fish somewhat resembling the sea-bream, though thicker and longer in proportion to it's size. The head is depressed; the snout is oblong; the back is sharp, and of a dirty yellowish green colour; and, in those which are large, sometimes purplish, sprinkled with bright blue and black spots, which likewise appear on the sides. There is a row of teeth in each jaw, of which four are more conspicuous than the rest, and resemble canine teeth; from which circumstance this fish has received it's name. The eyes are large, and encircled with golden irides. The Dentale is very common in the markets of Venice and Rome, and generally weighs about three or four pounds.

DENTALIA. A genus of univalve shells; which may be defined, simple tubular shells, of a regular, determinate, curved, conical shape, and open at both extremities. The animal is a terebella. The common Dentalium, which is slender, and about an inch and a half long, is found on most parts of the British coasts.

The species in this family are but few; and none of the fossil kinds are different from the recent. The genuine Dentalium, as described by Tournefort, is of a tubular or conical form, about three inches long, of a shining greenish white colour, hollow,

hollow, light, and longitudinally divided by parallel lines running from top to bottom. It is about the thickness of a quill, and somewhat resembles a dog's tooth.

Dr. Lister, in the *Philosophical Transactions*, mentions two species of *Dentalia*; one of which is commonly found about the shores of the isle of Guernsey, being a long, slender, white tube, somewhat bending and tapering, and open at both ends; and the other species, which is properly called *entalium*, is longer and thicker than the former, and falcated; whence the Italian term *intaglia*.

The *Dentalium*, called also the *syringites*, taken internally, is used as an alkali in sweetening acids, and in stopping the dysentery and spitting of blood. It is also administered externally as an absorber of moisture.

DENTEX. A fish caught in the Mediterranean seas in great plenty, and common in the Italian markets. See *DENTALE*.

DENTICULI ELEPHANTIS. An appellation given by some authors to the *dentale*, a shell of the *tubulus marinus* kind, which bears a distant similitude to an elephant's tusk. See *DENTALIA*.

DEPONA. A Mexican serpent, having a very large head and strong jaws. The mouth is furnished with cutting, crooked teeth; among which there are two longer than the rest, placed in the fore-part of the upper jaw, but essentially different from the fangs of the viper. Round the mouth there is a broad scaly border; the eyes, which are very large, give the creature a formidable appearance; the forehead is covered with large scales, above which there are other smaller ones curiously arranged: the scales are greyish on the back, along which runs a double chain, whose extremities are united in the manner of a buckler. Both sides of the belly are marbled with large square spots of a chestnut colour, and in the middle of each there is a round yellow dot. This serpent flies from the human species, and is seldom known to do any mischief.

DERMESTES. A genus of insects of the order of *coleopteræ*, the antennæ of which are clavated and perfoliated transversely. There are several species of this class, but they are frequently confounded with the *scarabæi*, or beetles.

DERMESTES, BLACK. This insect has a white spot on each of the cases of the wings; the body is small, black, and of an oval shape; and the legs and feelers are also black. It frequents houses and old walls; and, when touched, or alarmed by any noise, it draws its head and legs under the shell of the body.

DERMESTES, CYLINDRICAL. This species has a thick hairy neck, and testaceous cases for the wings: these cases are longish, blunt at their points, and of a whitish brown colour; but the body and legs are black. The antennæ, or feelers, are reddish. This insect is not much larger than a louse; and, when molested, it contracts itself, and remains motionless. It is very common in houses.

DEVIL, SEA. A very hideous fish of the ray kind, the flesh of which is reckoned a deadly poison. It is about four feet long, and broad in proportion. On its back there is a kind of bunch, covered with thorns or prickles like those of the hedge-hog; and the skin, which is hard, unequal, rough, and black, rises into various small prominences, between which there are small black eyes. The mouth is extremely wide, and armed with several very sharp teeth, two of which are crooked

like those of the wild boar. It is furnished with four fins, and a broad forked tail; but it receives the name of *Sea-Devil* from two sharp black horns over the eyes, which bend towards the back.

DEVIL, SEA, OF GUINEA. This fish, which is about twenty-five feet long, and eighteen broad, has four eyes. On each side rises an angular substance of a corneous nature, and very sharp; the tail is extremely long, and terminates in a dangerous point; the back is covered with small excrescences, two inches high, and sharp at the ends; the head is enormously large; the mouth is armed with flat cutting teeth; two of the eyes, which are round and large, are situated near the throat; and the other two are small, and placed over them. On each side of the throat there are three horns of equal lengths, about three feet long, and an inch and a half in diameter; but, being flexible, they are incapable of doing much injury. The flesh is tough and ill-flavoured, and by no means proper for food.

DEW-WORM. A genus of worms having slender annulated bodies, furnished with lateral pores. The common *Dew-Worm* has an hundred and forty rings; the head is taper; the mouth is round at the extremity; the fore-part of the animal is cylindric, and the rest depressed; at nearly one-third of the length, there is a prominent annulated belt; and a row of minute spines extend on each side of the belly, which assist the creature's motion.

DEW-WORM, LESSER. This worm is a variety of the former, and differs chiefly from it in size. It inhabits the common soil, which it renders apt to receive the rain by its repeated perforations. It feeds on the cotyledons of plants, or part of the vegetating seed, during the day; and at night crawls abroad, and copulates with the female.

Worms of this sort afford no inconsiderable sustenance to moles, hedge-hogs, and various sorts of birds.

DEW-WORM, INTESTINAL. This species lives in the lesser intestines of the human species, particularly those of infants; and does not essentially differ from the other kinds.

DEW-WORM, LUG. This insect has a round mouth; and a circular body annulated with greater and lesser rings, on each of which there are two tufts of short bristles placed opposite. The tail-part is smooth; and very curious ramifications issue from among the tufts in the living worm, which is soft, and full of blood.

This species inhabits sandy shores, where it buries itself deep; but its retreat is easily distinguished by a little prominence, with an aperture on its surface. It is much esteemed as a bait for fish.

DIABE. A prickly sea-fish of the orbis or globe fish kind, exactly resembling the porcupine, except that its spines or prickles are all fixed into its skin by three insertions.

DICRÔTUS. A term used by the ancients to express the deer or stag when in its third year's growth. By the ancient Greeks, it was called *nebus* in its first year, *puttolea* in its second, *dicrota* in its third, and *cerastes* ever afterwards.

DIDAPPER, DIPPER, or DOB-CHICK. This bird measures about ten inches in length, and sixteen in breadth; and weighs from six to seven ounces. The head is thick set with feathers, which in old birds are of a bright bay colour on the cheeks; the top of the head, the whole upper side of the body, the neck, and the breast, are a deep brown,

brown, tinged with red; the greater quill-feathers are dusky, and the interior webs of the lesser are white; the belly is cinereous, mixed with a silvery white and a tinge of red; the wings are small; and the legs, which are a dusky green, are placed so far behind, that the bird walks with difficulty, and very seldom attempts to fly: however, it meets with safety in diving; which act it performs with great velocity, and possesses the faculty of remaining a considerable time under water. This fowl, which subsists principally on fish and aquatic plants, forms its nest on the banks of rivers and lakes in the water, without any fastening, so that it floats in the stream. It lays five or six eggs of a white colour, which the bird always covers after quitting its habitation. Notwithstanding the rising of the water into the nest keeps the eggs constantly wet, the natural warmth of the animal brings on a fermentation in the vegetables; which being a full foot in thickness, make a comfortably warm bed, that assists the dam in hatching her brood.

DIDELPHIS. The Linnæan name for the animal called by other writers philander. In the above celebrated naturalist's system of zoology, this creature is also a distinct genus of animals of the order of feræ, and class of mammalia; the distinguishing characters of which are, that they have ten upper fore-teeth, and eight lower, the two intermediate ones being very short; that the lanarii are long, and the molares denticulated; and that they have also a small bag or pouch under the belly. See **OPOSSUM**.

DIEBEL. An appellation given by Kentman and others to the capito or chub. It is properly a species of the cyprinus. See **CAPITO** and **CYPRINUS**.

DIODON. A very curious genus of fishes, having a very deep body, which appears as if amputated in the middle. The mouth is small; and there are only two teeth in each jaw. Rondoletius has given this class of fishes the synonym of orthogoriscus, probably considering it as the same which Pliny intended by that name; but the account left by that naturalist is so short, that it is difficult to determine to what fish it is to be referred.

DIODON, OBLONG. This species, called also the sun-fish, grows to a vast size. That described by Salvian weighed upwards of one hundred pounds; and Dr. Borlase mentions one caught at Plymouth in 1734, which was five hundred weight. The Oblong Diodon, in shape, bears some resemblance to the bream, or to some deep fish cut off in the middle. The mouth, which is very small, contains only two broad teeth in each jaw, having sharp edges; the eyes are small, and before each there is a small semilunar aperture; the pectoral fins are very minute; the dorsal and anal fins are elevated, and placed at the extremity of the body; and the tail, which is narrow, fills all the abrupt space between those two fins. The back is dusky, and mottled; the belly is silvery; and between the eyes and the pectoral fins there are certain streaks which point downwards. The skin, which is destitute of scales, when boiled, turns to a glutinous jelly resembling cold boiled starch; and, on being applied to paper or leather, answers all the purposes of glue. This creature lives on shell-fish; and its flesh is so unusually rank, as to be totally unfit for food.

DIODON, SHORT. This species differs from the former in the shortness and deepness of its body; in the back and anal fins being higher; and in the aperture to the gills not being semilunar, but oval.

It was caught off Penzance, and is mentioned by Dr. Borlase in his Natural History of Cornwall. However, though it is sometimes found on the western coasts of this kingdom, it is more frequently so in the warmer climates of Europe.

DIODON, GLOBE. The length of this fish is about one foot seven inches; and the whole circumference, when distended, is two feet six. The form of the body is usually oblong; but when the creature is alarmed, it possesses the power of inflating its belly to a globular shape of great size. Nature seems to have endued the Globe Diodon with this property as a defence against fish of prey, as they are thereby prevented from laying hold of it with facility, and are likewise terrified by the vast numbers of spines with which that part is armed, and which it is capable of erecting at pleasure. The mouth is small; the irides are white, tinged with red; and the back, from the head to the tail, is almost straight, and of a rich blue colour. The dorsal fin is placed low on the back, the anal being opposite; the tail is nearly divided by an angular projection in the middle; and there are no ventral fins. The tail and fins are brown; and the belly and sides are white, corrugated, and beset with an infinite number of small sharp spines adhering to the skin by four processes.

This species is common to Europe and America; but only one single specimen has been discovered in our seas, and that near Penzance in Cornwall.

DIOMEDE BIRD. A fowl of the web-footed kind; having a slender beak, hooked at the end; and its hinder toe being unconnected with the membrane which unites the rest. It is of the size of the common hen; but its neck and legs are much longer. Its colour is dusky, and somewhat brownish; and under the belly there is a small portion of white. The beak is a fine red; and in some yellowish, with a black tip. It is found in the Insula Diomedea, now called Tremiti, in the Adriatic Sea; and is said to be peculiar to that island.

DIOMEDIA. The Diomedea, in the Linnæan system, forms a genus of anseres, with a straight bill; the upper mandible being hooked at the extremity, and the lower truncated. It includes the albatross and Magellanic goose.

DIPPER. A genus of shells of a suboval figure, smooth, furnished with an oblong aperture, and having one end a little convoluted. The inclosed animal is a slug. See **BULLA**.

DIPSAS. A species of serpent, the bite of which is of so malignant a nature, as to produce a mortal thirst; from which circumstance this reptile has received its name. It is found in Africa, and some other countries.

DIPTERA. An order of insects having only two wings; under each of which there is a style or oblong body, terminated by a protuberance or head called a balancer. The appellation is derived from Dis, Two; and Pteron, a Wing.

DISCOIDES FIBULA. A genus of the echinodermata, or sea hedge-hogs; the periphery of the base of which is exactly round, and the body of a convexo-concave figure. The principal species of this genus is the subuculus; which has sometimes a roseaceous top, the lines being very neat and elegant; at other times, a plain and smooth top; sometimes it is entirely covered with very minute and small striæ; and sometimes it is much more depressed than at others.

DIVER.

DIVER. A genus of aquatic birds; the characters of which are these: the bill is narrow, straight, and sharp; the upper mandible is longest, the edges of each bending inwards; the nostrils are linear; the head is small; the tongue is pointed, long, and serrated near the base; the wings are short; the feet are placed far backwards on the body, and near the tail, which is short, and consists of twenty feathers; the legs are broad and flattened; and the claws are wide and depressed. Of this fowl there are several species.

DIVER, NORTHERN. This bird measures about three feet and a half in length, and four feet eight inches in breadth. The bill is black and strong, and to the corners of the mouth is four inches in length; the head and neck are a deep black, the hind-part of the latter being streaked with a large white band shaped like a crescent; exactly under the throat there is another band; and both are marked with black oblong strokes pointing downwards. The lower part of the neck is a deep black, tinged with a rich purple gloss; the under-side of the body is wholly white; the sides of the breast are marked with black lines; and the back, the coverts of the wings, and the scapulars, are black, marked with white spots. The tail is very short, and almost hid by the scapulars, which are dusky spotted with white; and the legs and toes are black.

These birds, which inhabit the northern parts of this island, keep chiefly at sea, and feed on fish; but naturalists are not agreed that they breed in this kingdom, which they are known to do in Norway, where there are many birds common to Scotland.

DIVER, IMMER, OF LINNÆUS. This bird, which inhabits the seas about the Orkneys, in very severe winters migrates to the more southern parts of Britain. It lives so uniformly at sea, that some believe it never quits the water, and that it hatches it's young in an aperture formed by nature under it's wing for that purpose. With respect to size, it is larger than the goose; the head is dusky; and the back, the coverts of the wings, and the tail, are clouded with lighter and darker shades of the same colour. The primaries of the tail, as well as the legs, are black; and the breast and belly are silvery. The skin of this bird is so unusually tough, that it has been used instead of leather in some of the northern regions.

DIVER, SPECKLED. This fowl measures twenty-seven inches in length, and it's breadth is three feet nine inches; the bill is three inches, and turns a little upwards; and the mandibles, when closed at the points, do not meet at their sides. The head is a dusky grey, marked with numerous white spots; the hind-part of the neck is an uniform grey; the whole upper part of the body, and the greater coverts of the wings, are dusky, speckled with white; and the lesser coverts are dusky and plain. The tail is composed of nearly twenty feathers, which in some are tipped with white; the cheeks, and the whole under-side of the body, are a fine glossy white; and the legs are dusky.

Birds of this species frequent the European seas, lakes, and rivers, during the winter season; and, near the Thames, they are called sprat loons, because they attend these fish during their continuance in that river.

DIVER, RED-THROATED. This bird breeds on the margins of lakes, in the northern parts of Scotland, where it lays two eggs. It weighs about three pounds; it's length is two feet, and it's breadth three feet five inches. The head, which

is small and taper, is of a fine uniform grey colour; the chin is of the same hue; the bill is straight; the hind-part of the neck is marked with dusky and white lines pointing downwards; the throat is a dull red; the whole upper part of the body, the tail, and the wings, are a deep dusky grey; the under-side of the body is white; and the legs are dusky.

DIVER, PURPLE-THROATED. This species is about the size of the tame duck; the bill is black; the front is of the same colour; the hind-part of the head and neck are cinereous; the sides of the neck are marked with black and white lines pointing downwards; and the fore-part is of a glossy variable purple, black and green. The back, the scapulars, and the coverts of the wings, are black, the two former being marked with square, and the latter with round white spots; the quill-feathers are dusky; the breast and belly are white; the tail is short and black; and the legs are partly dusky and partly reddish.

DIVER, NEWFOUNDLAND, OR LOON. The expansion of the wings of this very large species measures four feet; the bill, which is black and sharp, is near five inches long, and terminates in a white point; the head and neck are a dusky brown; there is a white spot under the bill; and a circle of the same colour furrounds the neck, below which it is greenish. The primaries are black, except the exterior edges, which are white; the breast and belly are nearly of the same colour; the covert-feathers of the wings and back are irregularly spotted with white; the exterior toe is near five inches long; and the feet are webbed, in common with all the genus.

DOB-CHICK, or DIDAPPER. An aquatic fowl of the diver kind, known among authors by the name of *colymbus minor*, and called by Linnæus *colymbus auritus*. It seldom exceeds six ounces in weight; the beak is short, large at the base, and tapering to the point; the eyes are large; and the wings are small. This bird, which is not furnished with a tail, is covered with a thick downy plumage, of a very deep blackish brown on the back, but white on the belly.

The Dob-Chick is of such a structure that it moves with more facility under the water than on it's surface. It raises itself from that element with great difficulty; but, when it has once gained the air, it is capable of continuing it's flight for a considerable time. It forms it's nest, near the banks of lakes or rivers, of vegetables; the fermentation of which, occasioned by the natural warmth of the bird, hatches the eggs, even though the water invades the nest, and thereby keeps them in a constant state of humidity.

DOB-CHICK, BLACK AND WHITE. This species is about the size of the teal. The bill is straight, sharp at the point, and of a black colour, except the edges of the upper mandible, and the root or basis of the lower, which are red. The circle round the eye is a bright red; a bare skin, of a fine deep red colour, passes from the side of the upper bill to the eye; and above this skin, on each side, there is a white spot. The top of the head is black, with a greenish gloss; the upper side of the neck, the back, the rump, and the wings, are a pretty deep black; but the latter are edged with white about the ridges or joints; and the tips of the middle quills, which are white, form a transverse bar. The covert-feathers on the inner sides of the wings are white; the under-sides of the head

and neck are white, as well as the sides and belly, except that some black spots appear near the insertions of the legs, which are placed at the extremity of the body; and, together with the feet, are of a purplish flesh-colour internally, and a dirty green externally. The toes, which are four in number, are all disjoined; but they have lateral fins on each side, and broad flat claws resembling the nails of the human species. The hind-parts of the legs are serrated; and the toes are so formed with their webs, as to shut in the manner of a fan, that they may be drawn with more facility through the water, and opened again whenever the creature strikes. This bird has not the least appearance of a tail.

DOB-CHICK, EARED. This bird has a straight, sharp-pointed bill, of a black colour, except the tip of the lower mandible, which is whitish; the irides are red; and from behind the eyes, on each side, proceeds a tuft of long loose feathers of a reddish yellow colour, which either falls on the sides of the neck, or flows backward, according to the motion of the bird. The head and neck are black; the whole upper side is a blackish brown, except a little white about the joints and tips of the middle quills; the breast, belly, and inner coverts of the wings, are white; where the colours of the upper and lower parts of the body are blended, a line of a yellow reddish colour extends the whole length of the bird; and the legs and feet are of a dirty green hue.

DOB-CHICK, HORNED NORTH AMERICAN. This species, which is of the size of the teal, has small wings, and large legs and feet in proportion to its body. The bill is an inch and a quarter long, sharp-pointed, and white at the tip; and the nostrils are placed in furrows. From the corner of the mouth to the eye there is a bare skin of a red colour; the head is covered with long black feathers of a shining green gloss; behind the head runs a line of long loose yellowish orange feathers, which hang a little downward, and form a kind of crest; the hinder part of the back and neck are of a blackish brown hue; and the fore-part of the neck and beginning of the breast are a reddish orange, which turns a little white on the breast. The whole belly is a glossy white, with an admixture of dirty orange; the legs, which are flat and broad, are placed at the extremity of the body; the thighs are so confined within the skin, that they cannot be moved backwards and forwards; and the toes, which have stiff webs, are furnished with nails like those on the fingers of a man. This bird, which seems to be destitute of a tail, was brought from Hudson's Bay.

DOB-CHICK, GREATER. This bird inhabits the Lake of Geneva; though, if we may credit the ingenious Edwards, it has sometimes been seen in England also. The bill is flesh-coloured, and dusky at the tip; the top of the head, a mark on the side of the neck, and a line between the bill and the eye, are black; the hinder part of the neck, the back, rump, and upper sides of the wings, are cinereous, except that there is a border of white in the middle of the wing, and that the middle quills are white; and the insides of the wings are white, the quills being of a light ash-colour. The under-side of this bird, from the throat to the extremity of the body, is covered with fine white feathers of a fawn or silvery gloss; the legs and feet are a dusky green; and, like all the rest of the genus, this bird is destitute of a tail. The toes are not

webbed together, but have firm lateral membranes of a tolerable breadth extended on their sides; the nails are flat; and the entire construction of the legs seems perfectly adapted for the aquatic life of the animal. This species is about the size of the common duck.

DOBULA. An appellation given by some naturalists to the chub. It has been called *capito* and *cephalus* by the moderns, and *squalus* by the ancients; but it seems to require no genuine name, being properly only a species of *cyprinus*. See *CYPRINUS*.

Dobula is also a term expressive of a fresh-water fish of the leuciscus or dace kind; but it is larger, thinner, and better tasted. It is caught in the fresh-water lakes of Germany, and in those of some other countries.

DODO. A very large and curious bird, called by some authors *cygnus cucullatus*; by others, *gallus gallinaceus peregrinus*; and, by Bontius, *dronte*. Its appearance, instead of exciting an idea of swiftness, the common attribute of birds in general, seems to strike the imagination as something the most unwieldy and inactive in nature; its body, which is massive, almost round, and covered in general with grey feathers, is barely supported on two thick legs like pillars, while its head and neck rise from it in a manner truly grotesque. The neck, thick and purfy in itself, is joined to a head composed of two great chaps, opening far behind the eyes, which are large, black, and prominent; so that the animal, in gaping, exhibits to view a most enormous mouth: hence the bill is of an extraordinary length, thick, sharp at the end, and having each chap crooked in opposite directions; and the two mandibles, which are of a blueish white colour, in some measure resemble two spoons laid back to back. The result of all which combined circumstances is a stupid and voracious physiognomy, still farther heightened by a bordering of feathers round the root of the beak, which bears some resemblance to a hood or cowl, and finishes this unmeaning picture of deformity. Magnitude, which in other animals implies strength, in this only contributes to inactivity. The Dodo seems to be so weighed down by its own gravity, as scarcely to possess strength sufficient to give energy to its motions; and it appears among the feathered tribe, what the sloth does among quadrupeds, an unresisting creature, equally incapable of flight or defence. Its wings are covered with soft ash-coloured feathers, intermixed with a yellowish white, but they are too short to render it any essential service in flying; its tail, which is composed of a few small curled feathers of a whitish colour, is disproportionate and misplaced; its legs are too short to assist it in running; and its body is exceedingly clumsy. In short, this animal does not inaptly convey an idea of the tortoise dressed up in the feathers of a bird; and, though thus furnished with the means of flying, seems only still the more unwieldy.

The Dodo is a native of the Isle of France; and the Dutch, who first discovered it there, are said to have termed it the nauseous bird, as well from its disgusting figure, as from the disagreeable taste of its flesh: however, succeeding observers contradict this report, and assert that its flesh is good and wholesome food. Being a very simple and sluggish bird, as is pretty obvious from its figure, it consequently becomes an easy prey to the fowler.

Naturalists seem to be divided in their opinions, whether

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whether this bird, and that described by some authors under the appellation of the bird of Nazareth, are one and the same. They are unquestionably both natives of the same country; they are equally incapable of flight; and the form of the wings and body in both are similar. Nevertheless, they differ very essentially; for the plumage of the bird of Nazareth is described as being exceedingly beautiful; and its legs are delineated as being much longer than those of the Dodo.

DOG. A large genus of quadrupeds, furnished with six cutting teeth, and two canine ones in each jaw; having five toes before, and four behind; and the tail bending towards the left, the usual characteristic of the entire genus, and first discovered by Linnæus. These carnivorous quadrupeds are neither so numerous, powerful, treacherous, rapacious, nor cowardly, as those of the cat kind, which they seem to follow in the chain of nature. They may be distinguished by their claws, which have no sheaths, as in the feline tribe. The nose and the jaws of the Dog are also longer than those of the cat; and the body is more strongly made in proportion, and covered with hair instead of fur. If we compare the natural habitudes of these two classes of animals, we shall find that the Dog kinds are not so solitary as those of the cat, but delight to hunt in company, and to encourage each other by their mutual cries. In this manner the Dog and the jackall pursue their prey; and the wolf and the fox, though more solitary and shy in populous countries, in regions where they are less persecuted, and can display their natural propensities without fear, they are observed to keep together in packs, and pursue their game with alternate howlings. Though inferior to animals of the cat kind in the faculty of climbing, they infinitely exceed them in the sense of smelling, by which alone they can pursue their prey with certainty of success, wind it through all its mazes, and tire it out by perseverance. It often happens, however, in their savage state, that their prey is either too much diminished, or that the animals of which it consists are too wary, to afford a sufficient supply: in which cases all the Dog kinds can subsist for a considerable time on fruits and vegetables.

Of all the canine tribe, the Dog claims the preference, being the most intelligent of all known quadrupeds, and the acknowledged friend of mankind. Independent of the beauty of his form, his vivacity, force, and swiftness, he is possessed of all those native qualities which generally conciliate the affections of the human species. A natural courage and ferocious disposition render the Dog in his savage state a formidable enemy to all other animals; but these qualities speedily yield to very different ones in the domestic Dog, whose only ambition seems to be the desire of pleasing: he approaches with a timid respect, and lays his strength, his courage, and all his useful talents, at the feet of his master; he waits his orders, to which he renders implicit obedience; he consults his looks, and a single glance is sufficient to put him in motion. He is faithful beyond any example to be found among the human race; he is constant in his affections, friendly without interest, and grateful for the slightest favours; he retains the sense of benefits conferred longer than that of injuries received; he is not disgusted by a slight degree of harshness, but continues humble; submissive, and suppliant, under his owner's displeasure: his ultimate wish is that of being serviceable, his only fear that of

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displeasing; he licks the hand that has just been lifted up to strike him; and eventually disarms resentment by unwearied submission.

History, says Pope, is more replete with examples of the fidelity of Dogs than of friends; and indeed an attentive observance of these animals might afford instructive lessons of rectitude, patience, forbearance, and fidelity, even to the reputed lords of the creation. More docile than the human species, as well as more obedient than any other animal, the Dog not only receives instruction in a very short time, but also conforms to the dispositions and manners of those who command him; and his behaviour is modified after that of the family where he lives. Always assiduous in the service of his master, he is ever a friend to his friends, but indifferent towards others, setting himself openly against such as are dependent like himself. He forbids the approach of a beggar, whom he discovers to be such either by his cloaths, his voice, or his gesture. When the care of the house is committed to him, he seems ambitious of the charge; continuing a faithful sentinel, going his rounds, scenting strangers at a distance, and giving every indication in his power that he is intent on his duty. If any person attempts to intrude on his territories, he becomes unusually fierce, threatens, flies at him, fights, and either conquers alone, or alarms those for whom he contends.

From hence we may see of how great importance this animal is to us in a state of nature. Had the species never existed, how could man, without the assistance of the Dog, have been able to conquer, tame, and reduce to servitude, every other animal? and how could he have discovered, chased, and destroyed, those creatures which were noxious to him? In order to his security, and to constitute him the undoubted lord of animated nature, it was necessary for him to begin with conciliating the favour of a part of them; and to attach such to himself, by kindnesses and caresses, as seemed fittest for obedience and assistance. Thus the first art exerted by man consisted in securing the favour of the Dog; and the result of this art was the conquest and entire possession of the earth. Animals are in general endowed with more strength, agility, and fleetness, than the human species; and their senses (particularly that of smelling) are far more perfect. Having gained therefore a new assistant in the Dog, whose scent is so exquisite, man as it were gained a new faculty, of which he was before entirely destitute.

The Dog, thus useful in himself, being admitted to a participation of empire, exerts a degree of superiority over all other animals which stand in need of human protection. The flocks and herds obey his voice more readily even than that of the shepherd or the herdsman; he conducts them, guards them, confines them within their appointed limits, and considers their enemies as his own. Nor are his arts less serviceable in pursuit: when the sound of the horn, or the voice of the huntsman, calls him to the field, he testifies his pleasure by every little emotion; and pursues with perseverance those animals from which, when captured, he has no expectancy of reaping the smallest advantage.

All carnivorous animals naturally delight in hunting. The lion and the tiger, whose power is so great as generally to ensure conquest, hunt alone, and without any regular design; but the wolf, the Dog, and the fox, pursue in companies, assist each other, and participate in the spoils. However, when

when culture has perfected this quality in the domestic Dog; when he has been taught to repress his ardour, to measure his motions, and not to exhaust his strength by too sudden exertions, he then hunts with method and success.

Though the wild Dog, with all his natural propensities and habits, is at present utterly unknown, no such animal being now found in any part of the world; there are many Dogs which, from a domestic state, have become savage, and wholly pursued the dictates of nature. In those deserted and uncultivated regions where Dogs are found wild, they seem to be strongly tinctured with the disposition of the wolf; they unite in large bodies, and attack the most formidable enemies of the forest, such as the cougar, the panther, and the bison. In the continent of America, where they were originally introduced from Europe, and abandoned by their masters, they have multiplied to such a degree, that they are disseminated in packs over the whole country, indiscriminately attacking all other animals, and frequently even man himself: and there they meet with the common fate of carnivorous animals, being killed wherever they happen to make their appearance. Yet, notwithstanding their natural wildness, they are easily reclaimed; and, when treated with kindness and lenity, they quickly become submissive, familiar, and faithful in their attachments. In this respect, they totally differ from the wolf or the fox; which animals, though taken ever so young, are gentle only while cubs; for, when advanced in age, they always betake themselves to their natural appetites of rapine and cruelty. In a word, it may with truth be asserted, that the Dog is the only animal whose fidelity is not to be shaken; which knows his master and his friends; which instantly distinguishes strangers; which observes his name, and answers to the call; which seems to understand the nature of subordination, and solicits assistance; which testifies his regret for the loss of his master by complaint; which, when carried to any distant situation, can find his way home; whose native talents are evident, and whose education never proves fruitless when attentively cultivated.

As the Dog is of the most complying disposition, so also he is the most susceptible in the change of his form, the varieties of this animal being too numerous even for the most attentive describer to enumerate. The climate, the food, and the education, all make strong impressions on him, and produce alterations in his shape, colour, hair, size, and almost every thing except his nature. The same Dog, when transported from one climate to another, seems to become quite a different animal; but distinct breeds are almost as much separated, in appearance, as any two animals the most dissimilar in nature. Nothing appears to continue immutable with them, except their internal conformation: different in the figures of their bodies, the length of their noses, the shape of their heads, the extent and direction of their ears and tails, the colour, quality and quantity of their hair, the natural marks only remain unaltered by which the species is distinguished, and kept distinct from all other animals. It is this peculiar conformation, this faculty of producing an animal that can reproduce, which marks the kind, and approximates forms which at first sight appear as if never intended for alliance.

From this single consideration, therefore, all the various species of Dogs may be pronounced of the

same kind; but which of them is the original of all the rest, and which the parent stock from whence such a variety of descendants is derived, is a question which the ablest naturalist cannot solve with any degree of certainty.

It may be easily observed, that all animals which are under the influence of man are liable to great variations. Those which have been sufficiently independent to chuse their own climate and nourishment, and to pursue their own propensities, preserve the original marks of nature, without much deviation; and it is probable that the first of these is, even after such a lapse of ages, well represented in their descendants. But those which have been adopted by man, transported from one climate to another, and controuled in their manner of living, have also been changed in their forms: and the Dog in particular has felt those alterations more strongly than any other domestic animal; for, living more like man, he may be said to live more irregularly also; and consequently must have felt all those changes which such variety would naturally produce.

Various other causes may also be assigned for this variety in the species of the Dog: as he is perpetually under the eye of his master, where accident has produced any singularity in it's productions, man uses all his arts to continue this peculiarity unchanged; either by breeding from such as had those singularities, or by destroying those which happened to be destitute of them. Besides, as the Dog produces much more frequently than some other animals, and lives a shorter time, so the chances for it's varieties present themselves more frequently.

If the internal structure of Dogs of different sorts be compared with each other, it will be found that, except in size, they are in this respect exactly the same. This, therefore, affords no criterion by which to judge of the original animal. If other creatures be compared with the internal conformation of the Dog, the wolf and the fox will be found to have the most perfect resemblance: it is probable therefore that the Dog, which most nearly resembles the wolf, or the fox externally, is the original animal of it's kind; for it is reasonable to conjecture, that as the Dog most nearly resembles them internally, so he may approximate them also in external similitude, except where either art or accident has altered his form. This position being allowed, if we advert to the number of varieties which are to be found in the Dog, that species called the shepherd's Dog will bear the strongest resemblance to the wolf or fox. Hence this seems to be the primitive animal of it's kind; and we shall be more confirmed in that opinion, if we attend to the different characters which climate produces in this animal, and the different races of Dogs which are propagated in every country. If we examine those regions which are either in a savage state, or but half civilized, where it is most probable that the Dog, like his master, has received but few impressions from art, we shall find the shepherd's Dog, or a similar animal, still existing. Such Dogs as have run wild in America and Congo, approach this form. Those of Siberia, Lapland, Iceland, the Cape of Good Hope, Madagascar, Madeira, Calicut, Malabar, and Kamtschatka, have all long noses and pricked ears, and seem nearly allied to the shepherd's Dog. That of Guinea quickly assumes this appearance; for, at the second or third generation, the animal forgets

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to bark; his ears and tail become pointed; and his hair drops off; while a coarser and thinner kind supplies it's place. This sort of Dog is also found in great abundance in the temperate climates; particularly among those nations who, preferring utility to beauty, employ an animal which requires very little culture in order to it's being serviceable. Notwithstanding this creature's deformity, as well as his melancholy and savage air, he is superior to all the rest of the kind in instinct; and, without the smallest instruction, naturally tends the flocks with an assiduity and vigilance at once pleasing and astonishing.

In the more polished and civilized countries, the Dog seems to partake of the universal refinement; and, like the natives, becomes more beautiful and majestic, as well as more capable of imbibing an education foreign to his nature. The Dogs of Denmark, Greece, and Ireland, are larger and stronger than those of any other country: In France, Germany, Spain, and Italy, these animals, like the inhabitants, are of various kinds; and this variety seems to originate from crossing the breed of such as are imported from foreign climates. We may therefore consider the shepherd's Dog as the primitive stock from whence all those varieties are derived, especially as he forms the stem of that genealogical tree which has been branched out into every part of the globe.

This animal, when among the inhabitants of the temperate climates, continues nearly in his original state; but, when transported into more frigid regions, he grows diminutive and ugly: though in Iceland, Russia, and Siberia, where the climate is less rigorous than in Greenland, and where the people are more civilized, he arrives at a more perfect state. Whatever differences there may be among the Dogs of those climates, they are not so considerable as to alter the general features of the species: they have all straight ears, long thick hair, and a savage aspect; and they bark less frequently than those of the more cultivated kinds.

The shepherd's Dog, if transported into the temperate climates of England, France, and Germany, whose inhabitants are wholly civilized, will speedily be divested of his savage air, his pricked ears, and his rough, long, and thick hair; and, from the single influence of climate or food alone, will become either a *matin*, a *mastiff*, or a *hound*. These three seem to be the immediate descendants of the former; and from them the other varieties are derived.

The *hound*, the *harrier*, and the *beagle*, appear to be all of the same class; for though the female is covered but by one of them, her puppies bear some resemblance to all the three. If this animal be transported into Spain or Barbary, where the hair of all quadrupeds assumes a soft and long texture, it will there be converted into the *land-spaniel* and the *water-spaniel*, and these of different magnitudes. If the *grey matin-hound*, which composes the second branch, be transported to the north, it will there become the great *Danish Dog*; which last, if removed into southern climates, will be converted into the *greyhound*, of various sizes; and the same, if transported into the *Ukraine*, *Tartary*, *Epirus*, *Albania*, and *Ireland*, will become the great *wolf Dog*, so famous for it's spirit and size. If the *mastiff*, which constitutes the third branch, and is chiefly a native of England, be removed to Denmark, it will there be changed into the little *Danish Dog*; which last, if sent into the tropical cli-

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mates, will be turned into the animal called the *Turkish Dog* without hair.

All the above races; together with their varieties, are produced by the influence of the climate, joined to the different food, culture, and protection, which they meet with among mankind: but all other kinds may be considered as mongrel generations, produced by the concurrence of these, and originating rather from crossing the breed than attending to the individual. These varieties being extremely numerous, and very different in distinct countries, it would be endless to enumerate them all: besides, nothing but experience can ascertain the reality of the conjectures already made, though they have so much the appearance of probability.

The varieties of Dogs in Great Britain are very numerous; which must naturally be the case in all countries where commerce is extensive, and where wealth is apt to beget capricious predilection. In this island the ugliest, as well as the most useless of their kinds, are adopted merely on account of their singularity; and, being imported for no other purpose than to be looked at, they soon lose even that small degree of sagacity which they possessed in their natural climates. From this importation of foreign useless Dogs, the native breed of this country is much degenerated; and the varieties now to be found are much more numerous than they were in the reign of Queen Elizabeth, when Doctor Caius attempted their natural history: some of those described by him no longer exist; though many have been since introduced, neither so serviceable nor so beautiful as those which have since that period been suffered to decay.

The above naturalist divides the whole race of Dogs into three sorts. The first, being the generous kind, consists of the *tarrier*, the *harrier*, the *blood-hound*, the *gaze-hound*, the *grey-hound*, the *leymner*, and the *trembler*, employed in hunting; the *spaniel*, the *setter*, and the *water-spaniel* or *finder*, used in fowling; the *spaniel*, and the *gentle* or *lap-dog*, for amusement. The second sort, composed of the *farm kind*, consists of the *shepherd's Dog* and the *mastiff*. And the third, being the mongrel kind, consists of the *wappe*, the *turn-spit*, and the *dancer*. To which varieties may now be added the *bull-dog*, the *Dutch mastiff*, the *harlequin*, the *pointer*, and the *Dane*; together with a variety of *lap-dogs*, which being useless animals, are of course unworthy of particular appellations.

The English *bull-dog* is perhaps the most courageous of the kind; but all his boasted exploits fall infinitely short of those recorded by Pliny of the *Epirotic Dogs*, or by *Ælian* of the *Indian ones*. The latter of these authors has furnished us with the following description of a combat between a Dog and a lion; which, we apprehend, will not prove either useless or unentertaining to our readers.

‘When Alexander was prosecuting his conquests in India, a grandee of that country was desirous of shewing him the value of the Dogs which were there produced. Bringing his Dog into the king's presence, he ordered a stag to be let loose before him; which the Dog despising as an unworthy enemy, remained quite regardless of the animal, and never once stirred from his place. His master then ordered a wild boar to be let out; but the Dog seemed to think even this a despicable foe, and remained calm and regardless as before. He was next tried with a bear: but still contemning

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his enemy, he waited for an object more worthy of his courage and his strength. At last a tremendous lion was produced; and then the Dog acknowledged his antagonist, and prepared for the combat. He instantly discovered a degree of ungovernable fury, seized him by the throat, and totally disabled him from resistance. On this the Indian, who was desirous of surprizing the king, and trying the constancy and bravery of his Dog, ordered his tail to be cut off; which was performed without difficulty, as the intrepid Dog was engaged in holding the lion. He next ordered one of his legs to be broken; which, however, did not in the least abate the ardour of the Dog, but he still kept his hold as before. Another leg was then broken; but the Dog, as if unconscious of pain, only pressed the lion with more eagerness. In this cruel manner, all his legs were amputated, without abating his courage; and at last, when even his head was separated from his body, the jaws seemed tenacious of their former hold. A fight so cruel did not fail to affect the monarch with very strong emotions, at once exciting pity for the Dog's fate, and admiration of his fortitude. On which the Indian, seeing him thus moved, presented him with four Dogs of the same kind, which in some measure alleviated his solicitude for the loss of the former.'

However, the breed of Dogs in India is at present greatly inferior to what the foregoing relation seems to imply; and in many places, instead of Dogs, the natives employ animals of the cat kind in their hunting-matches. In other parts of that vast continent also, this admirable and faithful animal, instead of being applied to his natural uses, is only bred for the sake of food. Throughout the extensive empire of China, there are Dog-butchers, and shambles for the sole purpose of vending their flesh. At Canton, in particular, there is a whole street appropriated to that use: and, what is very extraordinary, whenever a Dog-butcher makes his appearance, all the neighbouring Dogs immediately pursue him in full cry, and persecute him to the utmost of their power.

On the coast of Guinea, the flesh of Dogs is esteemed so great a delicacy by the negroes, that they will readily exchange a cow for a Dog: however, by this uncivilized race of human beings scarcely any living creature is ever rejected. It may indeed happen that the flesh of this animal, which is so indifferent in the temperate climates, may assume a superior quality in those which are more torrid: still, however, it is highly probable that the diversity is rather owing to man than to the flesh of the Dog; since, among the hyperborean savages, it is eaten with equal avidity; and Dog-feasts are as frequent with them as venison ones with us.

The wild animals which approach nearest to the Dog are the wolf and the fox; and these, though they greatly resemble each other in their internal conformation, are very distinct in their natures. The ancients believed that they bred together; and it is incontestibly evident that a Dog and a fox, or a Dog and a wolf, will engender in this country. Pennant informs us, that the proprietor of a menage in Holborn having turned a wolf to a Pomeranian hot bitch, the congress was as usual between Dog and bitch, and the fruits produced were ten puppies. 'One of them,' says this ingenious naturalist, 'I have seen at Gordon Castle, which had very much the resemblance of a wolf, and much

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of it's nature; and, on being slipped at a weak deer, it instantly seized the animal by the throat, and killed it.' He could not, however, learn whether this mongrel continued it's species; though another of the same kind did, and stocked the vicinity of Fochabers, in the county of Murray, with a multitude of curs of a very wolfish aspect. A mongrel of this species was lately in the possession of Sir Willughby Aston. During the day-time, it proved very tame, but at night relapsed somewhat into it's natural ferocity. It never barked, but rather howled. When introduced by it's owner into a field or pasture where sheep were feeding, it generally feigned lameness; but in his absence it instantly attacked them. This creature had been observed to copulate with a bitch, which afterwards pupped; and the breed was imagined to bear a pretty strong resemblance to the supposed fire. As a farther proof that the bitch will breed with the fox, the wood-man of the manor of Mongewell, in Oxfordshire, lately kept one, which was the offspring of a tame fox by a shepherd's cur; and she afterwards pupped by means of a Dog. Since, therefore, such authentic proofs exist of the farther continuance of the breed, we may safely refer the wolf and the fox to the canine tribe.

However, all the endeavours of Buffon to procure a mixed breed of these animals proved ineffectual. This naturalist informs us, that he bred up a young wolf, taken in the woods at the age of two months, with a matin-dog of the same age. He shut them up together in a large yard, furnished with a shelter for their retirement. Neither of them knew any other individual of their kind, nor any of the human species except their feeder. In this situation they remained for three years, always properly attended, and free from all bodily restraint. During the first year, these young animals spent their time chiefly in sporting with each other. At the commencement of the second, they began to quarrel concerning their provisions, though supplied with more than they could possibly devour. Their disputes always originated on the part of the wolf; who, instead of proceeding to eat the victuals placed before them, immediately began to drive away the Dog, and catching up the wooden platter in which they were served, so expertly in her teeth as to suffer none of it's contents to fall on the ground, in this manner carried it off: but, as she could not entirely escape, she frequently ran round the yard with it five or six times, still holding it in the same position, though stopping at times for the purpose of breathing; till the Dog coming up, the wolf let fall her booty in order to attack him. The Dog, however, was the strongest of the two; but, being more gentle, had a collar always round his neck, the better to secure him from the fury of the wolf. On the arrival of the third year, the quarrels of those ill-paired associates becoming more vehement, and their combats more frequent, the wolf was necessarily collared, as well as the Dog, who began to be more fierce and untractable. During the two first years, neither of these creatures seemed to shew the least tendency towards engendering together; and it was not till the end of the third, that the wolf (the female) indicated any natural desire, but without abating either in her fierceness or obstinacy. This appetite rather increased than abated their natural animosity; they became daily more ungovernable and ferocious, and nothing but the growlings of discord and resentment resounded continually from their habitation.

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tion. In the space of a few weeks, both of them appeared remarkably emaciated, and seldom approached each other without fighting. Their contests at last became so very desperate, that the Dog killed the wolf, who was now become extremely feeble and wasted: and he also was soon after obliged to be slain; for, on regaining his liberty, he instantly attacked every animal that came in his way, man himself not excepted.

The above ingenious naturalist tried the like experiment on young foxes, but with no better success, for they never engendered with Dogs; and he seems to be of opinion, that their natures are too opposite ever to provoke mutual desire. One circumstance however is observable; namely, that the animals on which he tried his experiments were probably too old when taken, and had in some measure acquired their natural savage dispositions before they came into his possession. This wolf, according to his own account, was two or three months old before it was caught, and the foxes were taken in traps. It may therefore easily be supposed, that nothing could ever after perfectly tame those creatures, which had been suckled in a wild state, and had imbibed all the habitudes of their dams.

The Dog, when first produced, is not a perfectly formed animal. In this kind, as in all the rest which bring forth many at a time, the young are less compleat than in those which bring forth only one or two. They are always whelped with their eyes closed, the lids being held together by a kind of membrane, which bursts as soon as the upper eye-lid becomes strong enough to raise it from the under one. In general, they continue blind till the tenth or twelfth day; during which period, the bones of their skulls are incompleat, their bodies are inflated, their noses are contracted, and their whole figure is but imperfectly represented. In less than a month, the puppy begins to acquire all it's senses, and from thence makes hasty advances to perfection. At the end of the fourth month, the Dog, like other animals, sheds some of his teeth, which are renewed by such of them as are permanent. The number of teeth amounts to forty-two, being twelve more than is found in any of the cat kind, which never have above thirty. The teeth of the Dog being his principal, and indeed his only defence, they are formed in such a manner as to render him the most essential services. There is scarcely any quadruped which either rends, cuts, or chews it's food with greater facility than the Dog. He cuts with his incisores, or fore-teeth; he holds with his four great canine ones; and he chews with his grinders, which are fourteen in number, and so placed, that when his jaws are shut, there remains a distance between them; so that this animal, on opening his mouth to the greatest possible stretch, does not lose the power of his jaws. But the case is very different with respect to the cat kind, whose incisores, or cutting-teeth, are very small; and their grinders, when brought in contact, touch more closely than those of the Dog, and consequently have less power.

The Dog, who is capable of propagating his kind at the age of one year, generally lives to that of twelve; and the female goes with young nine weeks. Though few quadrupeds are less delicate with respect to their food, there are many kinds of birds which the Dog will not venture to touch; and, even in a savage state, he refrains from in-

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juring some to which nature seems to render him inimical. The wild Dogs and vultures about Grand Cairo in Egypt, according to the ingenious Hasselquist, generally associate together. As they are both very serviceable in devouring such carcases as would otherwise putrify, and thus infect the air, the inhabitants supply them daily with food, in order to keep them near the city; and on these occasions they are often seen together, feeding on the same piece of flesh without the smallest appearance of animosity.

Though the Dog is a voracious animal, he is capable of enduring hunger for a considerable time: and a remarkable instance of this kind is recorded in the Memoirs of the Academy of Sciences; namely, that of a bitch, who having been accidentally shut up in a country-house, lived there forty days, without any other nourishment than what she derived from the wool of a bed-quilt which she had torn to pieces. It seems, indeed, that water is more necessary to the subsistence of the Dog than food: he drinks often, though not in great abundance; and it is an universally received opinion, that if this animal be denied a sufficient quantity of this wholesome fluid, he will very soon discover symptoms of madness. This dreadful malady, the consequences of which are so well known, is the greatest inconvenience that results from the keeping this faithful domestic. But the distemper is by no means so frequent as the timorous are apt to imagine: the Dog is often supposed to be mad when he only labours under some common complaint; and, when he happens to bite under such circumstances, the force of imagination is frequently productive of the most fatal effects.

The Dog was consecrated to Mercury, the most vigilant and crafty of all the heathen deities, because vigilance and sagacity are the attributes of that animal. According to Pliny, the flesh of young Dogs was reckoned so pure, that it was offered in sacrifice to the gods, and served up in the repasts prepared for them. Among the Egyptians, these animals were held in universal veneration; but this awful respect was greatly diminished when, after Cambyfes had killed Apis, and caused him to be thrown into the laystall, the Dog alone, of all animals, fed on his carcase. The Romans crucified one of these creatures annually, by way of punishment for their neglect in not warning them, by their barking, of the arrival of the Gauls, who besieged the Capitol. If we may credit Ælian, the inhabitants of a certain country in Æthiopia had a Dog for their king, whose caresses and barkings they considered as marks of his favour or resentment; and around the temple dedicated to Vulcan on Mount Ætna, (says the same author) are placed sacred Dogs, which, as if endowed with reason, fawn on those who approach that temple with modesty and devotion, but bite and devour others whose hands are unclean.

DOG, SHEPHERD'S. This species, which is the *Canis Domesticus* of Ray, and *le Chien Berger* of Buffon, is common in almost every country of the world, without any very considerable variations; and so well known, as not to require any particular description.

DOG, HOUND. This animal is well known for it's uses in hunting. There are three varieties, all produced by the same dam; namely, the Hound, the harrier, and the beagle. The ears are long and pendulous; the nose is obtuse; the mouth is large;

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large; and the barking is loud and deep. If this creature, as before observed, is transported into Spain or Barbary, where the hair of all animals becomes soft and long, it will be converted into the land and water-spaniel, of different sizes.

DOG, SPANIEL. From the name of this creature, it would seem as if we were indebted to Spain for the breed. Animals of this kind vary in size, from the setting-dogs to the springing Spaniels, and some of the small lap-dogs. Britain has long been famous for producing excellent Dogs of this sort, great care having been taken to preserve the breed in its original purity. They are still distinguished by the name of English Spaniels; and, notwithstanding the derivation of the term, it is probable that they are natives of Great Britain. The pointer, which is a Dog of foreign extraction, was unknown to our ancestors; and the finder, which was another species used in fowling, appears to have been the same with our Water-Spaniel.

DOG, GREY-HOUND. This species, which is indiscriminately known by the names of the Grey or Gre-Hound, and is the swiftest of all Dogs, pursues his game by the sight, and not by the scent. The head and legs are long; and the body is so extremely slender, that the creature appears peculiarly adapted for fleetness. The Grey-Hound was formerly esteemed of the first rank among Dogs, as appears from the forest-laws of King Canute, who enacted, that no person under the degree of a gentleman should presume to keep that animal. The varieties are, the Italian Grey-Hound, which is small and smooth; and the Oriental Grey-Hound, which is tall and slender, with very pendulous ears, and long hair on the tail.

DOG, IRISH GREY-HOUND. This animal, which is also called the great Irish Wolf-Dog, is very rare even in the only country in the world of which it is a native; and is kept rather for shew than use, there being neither wolves, nor any other beasts of prey, in Ireland, which appear to require so powerful an antagonist. The Wolf-Dog is therefore bred up only in the houses of the great, or of such gentlemen as chuse to keep him by way of curiosity, being neither useful in hunting the hare, the fox, nor the stag; and equally unserviceable as a house-dog. Nevertheless, he is extremely beautiful and majestic, and the largest of the canine race to be seen in the world. Some of these formidable animals are about four feet high, or as tall as a calf of a year old. In their shape, they strongly resemble the Grey-Hound, but are rather more robust, and inclining to the figure of the French *matin*, or the great Dane; and though they appear heavy and phlegmatic in their dispositions, one of them is so amazingly strong, as to be capable of engaging singly with the bear.

Buffon is of opinion, that these are the true Molossian Dogs of the ancients: but as he has adduced no proofs in support of his notion, other naturalists are inclined to suppose it ill-grounded. If these animals are transported to other countries, they soon degenerate; and even in their native climates they are subject to change, unless great care is taken to prevent it. Formerly they were employed in clearing the island of wolves, which greatly infested it; but these beasts of prey being now exterminated, the Dogs also begin to decline, as if nature intended to obliterate the species when they were no longer serviceable: and in this man-

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ner various kinds of animals, once well known, have gradually dwindled from the face of the earth.

DOG, DANISH. This very large Dog resembles the mastiff, except that its body and head are longer and more slender. Danish Dogs are generally of a yellowish brown colour; but some are grey, and others quite black. They carry their tails turned up, and have large high foreheads. Of this kind, perhaps, were the Dogs of Epirus, mentioned by Aristotle; or those of Albania, so well described by Pliny.

DOG, MASTIFF. The Mastiff Dog is large and strong, and barks very loud. His head is extremely large; and his lips, which are very full, depend on each side. He has a noble mien, and rather commands respect than excites terror. Dr. Caius informs us, that three of these Mastiffs are reckoned a match for a bear, and four for a lion; but, from an experiment made in the Tower by King James I. a lion was an unequal match for only three of them; for though two of the Dogs were disabled in the combat, the third put the lion to flight.

Great-Britain was formerly so celebrated for its Mastiffs, that the Roman emperors had certain officers in this island, whose sole business consisted in superintending the breed, and transporting from hence to their amphitheatres such of these animals as were deemed proper for their combats. But Mastiffs are now usually employed in guarding houses, yards, and other places in which property is lodged, from the invasions of robbers.

DOG, BULL. This species has a large thick head, and a short nose; the under-jaw is longer than the upper; and the tail is turned upwards. The Bull-Dog, which is a strong, fierce, and cruel creature, frequently bites before he gives warning of his approach. He is peculiar to England; and, since the refinement of the age has suffered bull-baiting to decline, the breed is become more scarce.

DOG, PUG. This variety, called also the Dutch Mastiff, somewhat resembles the Bull-Dog, but is vastly smaller, and destitute of any of his intrepid qualities. The muzzle is black; the nose is flat; the hair is a yellowish brown; and the tail is turned up in a curl. The ears of Dogs of this kind are generally cut off, that their heads may appear rounder. Some of them have black lists running down their backs; but so great are the varieties in this species, that no positive description of them can possibly be given. The Pug-Dog is a very domestic animal, never following his master to any considerable distance from home.

DOG, TERRIER. The Terrier is a small rough kind of hound, extremely well adapted to hunt the fox or the badger out of their holes; or rather, by his barking, to give notice in what part of their kennels they reside, when the sportsmen purpose to dig them out. Agreeable to the caprice of mankind, animals either become fashionable, or fall into decay; and accordingly the Terrier is at present in high estimation in this island; but how long he will continue the general favourite, time only can develope.

DOG, GAZE-HOUND. This animal received his appellation from his hunting by the eye, and not by the scent. He seemed equally adapted for the chase of the buck, the fox, or the hare; for he would select from the herd the finest deer, pursue it by the eye for a long time, and if accidentally lost,

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lost, recover it again by this singular distinguishing faculty, even though the animal should have rejoined the herd. This species, however, is now either lost, or totally unknown among us.

DOG, BLOOD-HOUND. This creature was in high estimation among our active ancestors. His usefulness consisted in recovering any game that had either escaped from the hunter in a wounded condition, or had been killed and stolen out of the forest. When Great-Britain was less populous than at present, he was likewise employed in hunting thieves and robbers by means of their footsteps: at this time, however, the country being every where peopled, this variety seems to be entirely worn out. See **BLOOD-HOUND**.

DOG, LEYMMER. This animal, according to Caius, hunted both by the scent and sight; and, with respect to the shape of his body, partook of the hound and the grey-hound. He was usually conducted to the field by a leyme, or thong; from whence his name is derived. This species is at present entirely unknown.

DOG, TUMBLER. This animal, which is also called the Rabbit-Dog, somewhat resembles the small grey-hound. He appears as if at play with his game even at the very time he is in pursuit of it. When he enters a warren, he neither barks, nor runs after the rabbits; but, seemingly inattentive, approaches so near, as to be within the reach of his prey, which he seizes with a bound, after the manner of the feline tribe.

DOG, LAP. Lap-Dogs are of various kinds and sizes, owing to climate and culture. The Maltese little Dogs, so much esteemed by the ladies of ancient times, now give place to those of Bologna. The smallest ones are generally preferred; but, the more singular and extraordinary they are in their conformation, the more they are valued by their whimsical admirers.

DOG, SMALL DANISH. This animal, which is very gentle and sportive, resembles the harlequin Dog, except that he is shorter. His head is round; his eyes are large; and his nose is small and slender.

DOG, HARLEQUIN. The Harlequin Dog resembles the last described animal, but is longer, and generally black and white; though some are white, and of a cinnamon hue. There are several varieties among these; and, indeed, among all the smaller species.

DOG, CUR. The Cur-Dog, called also the House-Dog, is about the size of the fox, with upright ears, and a kind of woolly hair beneath his tail. Cur-Dogs are generally of a mongrel breed, and consequently their shapes and sizes must be very different.

DOG, SHOCK. Shock-Dogs are distinguished by their long curled hair, of which they have such large quantities, that some of the white kinds have the appearance of sheep; but their shape is very different, and their hair hangs so low and full on their heads, that their eyes seem almost lost.

DOG, TURKISH. This animal differs from all the other species in being entirely destitute of hair. The skin is smooth, of a flesh-colour, and interspersed with brown spots. The Turkish Dogs seem to be of the small Danish breed, introduced into a warmer climate, where, in a succession of generations, they become divested of their hair; they are therefore unable to endure the rigours of our climate, being extremely chilly, and subject to frequent shiverings even during the most favourable seasons of the year.

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DOG, LION. This creature resembles the animal in miniature from whence he receives his name. The hair of his fore-parts is extremely long, and that of his hinder ones equally short; his nose is obtuse, and his tail long and tufted at the point; so that he resembles the lion in all the foregoing particulars. But, notwithstanding this similarity, he differs very much from that fierce animal in his nature and disposition, being one of the smallest creatures of the kind, and extremely feeble, timid, and inactive. The Lion Dogs were brought originally from Malta, where they are so very diminutive that the women frequently carry them in their sleeves.

DOG, NEW ZEALAND. This species, which seems to have been originally brought from New Guinea, is likewise found in the Society Islands, and pretty much resembles the sharp-nosed, pricked-eared shepherd's cur. In the above islands, where these animals constitute the common food of the inhabitants, they are fattened with vegetables, which are generally crammed down their throats when they will not voluntarily eat them. They are usually dispatched by strangling; and the extravasated blood is preserved in cocoa-nut shells, and baked for the table. They grow exceedingly fat; and some Europeans, who have been enabled to overcome their prejudices to this kind of fare, allow the flesh to be sweet and palatable. However, this custom is not confined to those simple islanders alone; the ancients reckoned a young and fat Dog excellent food, especially if he had previously been castrated. Hippocrates deemed the flesh of a grown Dog equal to mutton or pork, and very wholesome and strengthening; and the Romans, who were very fond of sucking-puppies, sacrificed them to their divinities, and esteemed them as viands in which the gods themselves delighted.

DOG, BARBET. This animal, which is a native of New Zealand, is covered with a kind of long silky hair much valued by the natives in trimming their ornamental dresses; but his flesh is not eaten, like that of the common species. The Zealanders never make use of their Dogs for the same purposes as the Europeans; and indeed they are so excessively stupid, and possess the sense of smelling in so imperfect a degree, that they seem totally unfit for the chase. They live entirely on fish; and so much care is taken of them by the natives, that they are never suffered to wet their feet.

DOG, KAMTSCHADALE. The late ingenious Captain King informs us, that this animal, in his shape and mien, exceedingly resembles the Pomeranian, or Wolf-Dog, except that he is considerably larger, and his hair somewhat coarser. The colours of these Dogs are various, but the prevailing one is a light dun, or dirty cream. 'Towards the latter end of May,' says he, 'they are all turned loose, and left to provide for themselves during the summer, being sure to return to their respective homes as soon as the snow begins to fall. Their food in winter consists entirely of the head, entrails, and bones, of salmon, which are saved for that purpose; and with this diet they are but sparingly fed. In this country the breed is very plentiful, as may easily be conceived from the great numbers employed in drawing sledges: five of them are yoked to one sledge, which carries only a single person; and it is remarkable, that bitches are never used for this purpose, nor even Dogs before they have been castrated. The whelps are trained to this business, by being tied to stakes with light leather thongs which are made to stretch,

and having their victuals placed at a proper distance out of their reach; so that by a constant pulling and exertion to come at their food, they acquire both that strength of limbs and habit of drawing which qualify them for their future destination.

‘When the Kamtschadales intend to perform a journey in winter over the frozen snow which covers their country, they yoke five Dogs, two and two, with a leader, to a sledge about four feet and a half long, and one foot wide, made in the form of a crescent, of light tough wood strongly bound together with wicker-work. This sledge is supported by four legs, about two feet high, which rest on two flat pieces of wood five or six inches broad, and extending a foot at each end beyond the frame of the sledge. These are turned up before in the manner of a skate, and shod with the bones of some marine animals. The fore-part of the carriage is ornamented with thongs of leather and tassels of coloured cloth; and from the cross bar, to which the harness is joined, are hung links of iron, or small bells, the jingling of which is supposed to animate the Dogs. The passenger sits aside, resting his feet on the lower part of the sledge, and carrying his provisions and other necessaries wrapped up in a bundle behind him. The reins not being fastened to the heads of the Dogs, but to their collars, have little power over them; and are therefore generally hung on the sledge, while the driver depends entirely on their obedience to his voice for the direction of them. With this view the leaders are always trained up with a particular degree of care and attention; and some of them rise to an extraordinary value on account of their steadiness and docility. The driver is also provided with a crooked stick, which answers the double purposes of whip and reins; as, by striking it into the snow, he is enabled to moderate the speed of the Dogs, or even to stop them entirely; and when they are lazy, or otherwise inattentive to his voice, he chastens them by throwing it at them. On these occasions, their dexterity in picking it up again is very remarkable, and forms the principal difficulty of their art. Yet it is not surprising that they should labour to become expert in a practice on which their safety so materially depends: for it is said, that if the driver should happen to lose his stick, the Dogs instantly perceive it; and unless their leader be of the most sober and resolute kind, they will immediately run a-head full speed, and never stop till they are quite spent; but as that does not happen very soon, the carriage is either overturned and dashed to pieces against the trees, or hurried down some precipice, and buried in the snow.’

The above respectable gentleman, to whom we are indebted for the foregoing relation, observes, that the accounts given him of the fleetness of these Dogs, and of their extraordinary patience under the calamities of hunger and fatigue, were scarcely credible, if they had not been supported by the best authority. ‘But,’ proceeds he, ‘we were indeed ourselves witnesses of the great expedition with which the messenger, who had been dispatched to Bolcheretsk with the news of our arrival, returned to the harbour of St. Peter and St. Paul, though the snow was at this time exceedingly soft: and I was informed by the commander of Kamtschatka, that this journey was generally performed in two days and a half; and that he had once received an express from the latter place in twenty-

three hours, though the distance is not less than one hundred and thirty-five English miles.’

DOG-FISH, PICKED, or HOUND-FISH. This fish, which is a variety of the shark kind, receives its name from a sharp spine placed exactly before each of the back-fins, and distinguishing it at once from the rest of the British sharks. The body, which is roundish and oblong, is covered with a rough skin, generally known by the name of fish-skin, and used by joiners and other artificers in polishing various substances, particularly wood. The back is of a brownish ash-colour; and the belly is white and very smooth. The nose, which is long, extends a considerable way beyond the mouth, but is blunt at the end; the eyes are shaped somewhat like a boat, and covered with double membranes; the mouth, which is placed just under the eyes, is armed with a double row of small teeth; and the two back-fins have strong sharp spines or prickles standing before them, of which the one nearest the head is thicker and longer, and that nearest the tail shorter and smaller. These fish, when at their full growth, weigh about twenty pounds each; and bring forth their young alive, which are produced from eggs hatched within their bodies. They are caught in the British ocean and the Irish seas: but on the coasts of Scotland in particular, where they swarm, they are dried, and constitute a considerable part of the food of the common people.

DOG-FISH, SMOOTH. This species has no teeth; but the bones of each jaw, which are as rough as a file, supply their place. The skin is perfectly smooth, though in all others of this kind it is rough; and by that variation alone this creature is easily distinguishable from the picked Dog-Fish.

DOG-FLY. A species of Fly very common among woods and bushes, and extremely troublesome to dogs. These Flies usually fasten on the ears of those animals, from whence they are seldom dislodged except by being killed. They sting very severely, and always occasion a swelling. They somewhat resemble those flat black flies so inimical to cattle. They are destitute of trunks, but are furnished with two teeth like those of the wasp; and their wings adhere so close to their bodies, as to be scarcely perceptible.

There are two varieties of the Dog-Fly; the largest is generally found in woods, and the smallest frequents hedges.

DOG's TOOTH SHELL. See DENTALIS.

DOLIUM. A genus of shells, called by some authors *conchæ globosæ*; and, by French naturalists, tonnes. The characters of the genus are these: an univalve shell having a globose or round belly, with a lax aperture, sometimes smooth, and at others dentated; the clavicle is either moderately umbonated, or depressed; and the columella is in some species smooth, and in others wrinkled. These shells are also by some termed *conchæ ampullacæ*; and they have at various periods been distinguished by other names; but all tend to express the globular figure of the body, the leading character by which they are distinguished from all other shells.

The Persian Dolium, so frequently employed in ornamenting the cabinets of the curious, is a very singular species; but the globose figure of its body evidently refers it to this genus, though it differs in many particulars from every other class. There are six species of the round umbilicated Dolia; five of the oblong and smooth; seven of the oblong, costated,

costated, and umbonated; five of those with long and arched tails; and seven of that series which, from their figure, are called bullæ: to all which may be added a very curious species of fasciated Dolium, of a blue colour externally, and white internally; by some naturalists called the vitta cœrulea; and of which kind there is an olive-coloured shell.

DOLPHIN. The Dolphin, in the Linnæan system of zoology, constitutes a distinct genus of fishes of the order of cete, and class of mammalia; the characters of which are, that there are teeth in both jaws, and that there is a pipe in the head.

Historians and philosophers have seemingly contended, who should invent the greatest number of fables concerning the Dolphin. In the earliest ages, it was celebrated for its attachment to the human race, and distinguished by the name of the Boy-loving, and Philanthropist. Scarcely could an accident happen in the liquid element, but the intervention of the Dolphin afforded relief to the unfortunate. The musician Arion, thrown into the sea by pirates; and the boy taking an airing in the midst of the sea, and returning again in safety; were obliged to the Dolphin for its services. It is not easy, however, to assign a reason for this extraordinary predilection of the ancients towards this creature: its figure is far from prejudicing us in its favour; and its extreme rapacity tends still less to endear it to us. Indeed, there appears to be no qualities in this animal capable of exciting the compassion of the human race, except its plaintive moanings; by which, when taken, it sometimes indicates its sense of pain, and continues to express it till it expires. This circumstance might at first, in all probability, have excited human pity, and produced affection. At present, however, Dolphins are regarded, even by the vulgar, in a very different light: their appearance is generally esteemed a very unfavourable omen by mariners; since, from their boundings and frolics in the water, they have often been taught to expect an approaching storm.

Neither have the ancients confined their fabulous reports concerning these animals to one circumstance only: as, from their leaps out of the water, they assume a temporary curvature, which is by no means their natural figure, the old painters and sculptors have universally erred in their delineation. Dolphins are scarcely ever exhibited by the ancients in a straight shape, but curved, in which position they sometimes appear when exerting their force; and the poets also, for whom prescription may be pleaded, have adopted the general error. Aristotle, indeed, of all the ancients, steers the clearest from the intermixture of fable with description; and gives us in general so faithful a history of this animal, as evinces his judgment and sagacity to be superior to those of all his successors. But the elder Pliny, Ælian, and some others, have set no bounds to their credulity and fiction: the former asserts that a Dolphin, if taken out of its native element, will instantly die; while Rondolelius, on the contrary, assures us, that he has seen one carried alive from Montpelier to Lyons.

The moderns, however, have acquired juster notions of these animals, and rejected the various fables concerning them which daily experience serves to contradict. Indeed, their numbers are so great, and (though naturally shy) they are so frequently caught, that such peculiarities, were they really possessed of them, would have been long

since ascertained. They are frequently seen in such large shoals in almost all the circumambient seas of this kingdom, that they prove noxious, and sometimes even fatal, to seamen who navigate small vessels. In some places, when they rise to the surface for the purpose of breathing, they almost totally darken the water; and particularly, before boisterous weather, they seem to be much agitated, swimming against the wind, and tumbling about with unusual violence; but whether these motions are the gambols of pleasure, or the agitations of terror, cannot well be determined. It seems most probable, however, that they have an instinctive apprehension of those seasons of turbulence, when the lesser fishes shrinking to the bottom, their prey no longer presents itself in its usual abundance. In calm and temperate weather, they are seen herding together, and pursuing shoals of various fish with great impetuosity. The method which they adopt in hunting their game, if it may be so called, is to follow in packs, and thus yield each other their mutual assistance. At those seasons when mackarel, herrings, salmon, and other fish of passage, begin to make their appearance, the cetaceous tribes are observed to be more fierce in their pursuit, urging their prey from one creek or bay to another, deterring them from the shallows, driving them towards each other's ambush, and using all the various arts which their instinctive faculties are capable of teaching them.

But it sometimes happens that either the impetuosity or hunger of the Dolphin, and its companions the porpus and the grampus, in their usual pursuits, urges them beyond the limits of safety. The fishermen on the Cornish coasts, who spread their extensive nets for pilchards, sometimes experience a very unwelcome capture in one of these creatures: on such occasions, their feeble nets, which are only calculated for the detention of the smaller kinds of fish, suffer an universal laceration from the efforts of this strong animal to escape; and, if not dispatched before it has had time to flounder, the nets are inevitably destroyed, and the fishery is interrupted.

The natural shape of the Dolphin is almost straight, the back being very slightly incurvated, and the body slender. The nose, which is long, narrow, and pointed, somewhat resembles a bird's beak; and hence it is called by the French *L'oye de Mer*. It has forty-two teeth, each a little more than an inch in length, conic at their upper ends, sharp-pointed, and slightly bending inwards: they are placed so very little asunder, that when the creature's mouth is shut, the teeth of both jaws lock into each other. The spout-hole is situated in the middle of the head; the back-fin is high, triangular, and somewhat nearer the tail than the head; and the pectoral fins are placed very low. The tail describes the form of a crescent; the skin is smooth; the colour of the back and sides is dusky; and the belly is whitish.

Dolphins were formerly esteemed great delicacies in this country; and Dr. Caius remarks, that one of them, caught in his time, was thought a present worthy of the Duke of Norfolk, who distributed part of it among his friends: it was roasted, and dressed with porpus sauce made of crumbs of fine white bread mixed with vinegar and sugar.

Several parts of the Dolphin are applied to medicinal uses; namely, the liver, the ashes, the belly, and the fat. The belly, when dried, triturated, and exhibited in some proper fluid, is said to cure splenetic

splenetic patients; and we are told that the liver, when roasted, and used with aliments, perfectly cures tertian and quartan fevers, and also that species of nocturnal fever known by the name of typhus. Pliny enumerates the ashes of the Dolphin among the specifics for curing the ring-worm and leprosy; and, according to the same author, the fat, when melted and drank with wine, proves effectual in the removal of dropsies.

The Dolphin is said to go ten months with young; and, like the whale, seldom to bring forth more than one at a time, and that in the middle of summer. It lives a great number of years, though some say not more than twenty-five or thirty. This species of Dolphin, however, should not be confounded with that to which sailors give the same name; the latter being the *coryphæna hippuris* of Linnæus, and the dorado of the Portuguese described by Willughby.

DOLPHIN OF THE MODERNS. This fish, the *hippuris* of some authors, and the dorado of others, has a flat and roundish snout, and the body tapers from the head to the tail; but its principal beauty consists in its colours, which are indeed very brilliant. The back is wholly enamelled with blueish green spots, which shine like jewels in a dark ground; the tail and fins are of a gold-colour; and nothing can exhibit a more beautiful appearance than this fish when either viewed in its native element, or before it is quite dead. It grows to the length of five or six feet, and is nearly as thick as the salmon. A remarkable fin runs from the head, along the back, to the root of the tail, which in the middle is seven inches broad, and consists of a kind of coriaceous membrane with soft spines; opposite to which there is another fin, not more than one inch broad, and extending from the vent to the tail. The tail, which is upwards of two feet and a half long, is divided into two large horns; and the scales are so very minute as to be hardly perceptible. This fish swims with such amazing velocity, as frequently to keep pace with a swift-sailing ship for a considerable space of time. See *CORYPHÆNA*, and *HIPPURIS*.

DONAX. A genus of bivalve shells, the marginal front of which is much blunted; and the inclosed animal is a tethys. There are only two species found on the British coasts.

DONAX, YELLOW. The outside of this shell is of a glossy whitish colour tinged with a dirty yellow, and marked longitudinally with numerous elegant minute striæ; and the inside is purple. This species is upwards of one inch in breadth.

DONAX, PURPLE. This shell is somewhat broader than the preceding, of a uniform shape, extremely blunt at one end, striated like the former, and serrated at the edges. It is internally of a purplish colour, and tinged with the same hue externally.

DONGON. The Philippine name for a peculiar species of crane. The body, which is large, resembles that of the goose; the neck is rather short; and the beak, which is very long and broad, is of a greyish colour. There is also another remarkable species of crane peculiar to the Philippine islands, called by the natives *tipul* or *tihol*; which is so very tall, that, when standing erect, it is capable of overlooking a middle-sized man.

DONNA. A name given by Zuchelli, and some other authors, to the manati or sea-cow.

DONZELLINA. The julis: a very beautiful fish caught in the Mediterranean seas, and ap-

proaching to the nature of the *turdus* or wraasse. See *JULIS*.

DORADO. A large sea-fish, called by the Brazilians *guaracapema*. There is a sort of crest on the head, adjoining to a large fin which extends to the tail; and there is likewise another fin which reaches from the vent to the tail. The ventral fins extend almost to the vent, which is placed in the middle of the body; the mouth is of a moderate size; there are sharp teeth in the jaws, palate, and tongue; the eyes are large; the scales are extremely small; and the colour is a blueish green. This fish gradually decreases in thickness from the head; and the flesh is fat, sweet, and solid, like that of the tunny. The Dorado resembles the dolphin of the moderns, or *hippuris*, in such a number of particulars, that many naturalists have supposed them to be one and the same fish.

DOREAS LYBICA. A name given by Ælian and some other naturalists to the common antelope.

DOREE, or JOHN DOREE. A fish called by the generality of naturalists *faber*, *gallus marinus*, and *zeus*. The term Doree is borrowed from the French; and, with respect to the word John, prefixed to it by some writers, it seems to be only a corruption of the French word *Jaune*, Yellow; that nation expressing the colour of the sides of this fish by the phrase *Jaune Doree*; whence the appellation John Doree; or, among the vulgar, John Dory.

Superstition has made the Doree to rival the haddock for the honour of having been the fish out of whose mouth St. Peter took the tribute-money; leaving on its sides those incontestible proofs of its identity, namely, the marks of his finger and thumb. But it is difficult, and indeed unnecessary, to determine on which side to give a verdict; the Doree likewise asserting an origin of its spots of a similar nature, but of a much earlier date than the former: for St. Christopher, if we may credit Belonius and Aldrovandus, in wading through an arm of the sea, having caught a fish of this kind en passant, as an eternal memorial of the fact, left the impressions on its sides to be transmitted to all posterity.

The form of the Doree is extremely forbidding. The body is oval, and greatly compressed on the sides; the head is large; the snout projects greatly; the mouth is very wide; the teeth are extremely small; and the eyes are large, the irides being yellow. The lateral line is unusually distorted, sinking at one end, and rising near the middle of the back; and beneath it, on each side, there is a black round spot. The first dorsal fin consists of ten strong spiny rays, with long filaments reaching far beyond their extremities; and the second, which is placed near the tail, is composed of twenty-four soft rays, the middlemost being the longest. The pectoral fins have fourteen rays, and the ventral seven: there are also two anal fins; and the tail, which is round at the extremity, consists of fifteen branched rays. The weight of this fish seldom exceeds twelve pounds. It is called the Doree, or gilt-fish, from its shining appearance when alive. Its sides are of an olive colour, varied with light blue and white; and indeed the beauty of its colouring in some measure atones for the deformity of its figure.

It was long before this fish attracted the notice of Britons, as one not only edible, but even delicious. The vulgar prejudices which arose from its deformity deterred our ancestors from tasting it: but

but the late Mr. James Quin, that judicious comedian and bon vivant, effectually established it's reputation, and added a most delicious fish to the catalogue of luxuries.

The Doree is found not only in the southern seas of this kingdom, but likewise on the coast of Anglesea. Those of the largest size are taken in the Bay of Biscay off the French shores; and also in the Mediterranean seas.

DORÉE, INDIAN. This fish, which is caught in many parts of the East Indies, and called meerhaen by the Dutch, appears to be the same with the animal described by Marcgrave under the appellation of the abacatui.

DORIS. A genus of creeping worms, of which there are several species. The body is oblong, and flat beneath; the mouth is placed below, and the vent behind; and there are two retractile feelers.

DORIS, LEMON-COLOURED. The body of this species is oval, convex, and marked with numerous punctures; the vent being surrounded with elegant ramifications. It is of a lemon colour; and is found in different parts of the British seas, particularly near Brighthelmstone, where it is called the sea-lemon.

DORIS, WARTY. This variety, which is found near Aberdeen in Scotland, is of an ovated figure, convex, and tuberculated.

DORIS, AMBER. The body of this species resembles the snail; it's front is abrupt; and it's colour is like that of amber. It inhabits the seas near Anglesea.

DORMOUSE. A kind of wild field-mouse, called also the sleeper, belonging to the order of glires in the Linnæan system; having two cutting teeth in each jaw; four toes before, and five behind; and naked ears. These mice inhabit woods and thick hedges; and build their nests, which are lined with moss and dead leaves, either in the hollow parts of trees, or near the bottoms of close shrubs. Towards the approach of winter, they form little magazines of nuts, beans, or acorns, on which they subsist during that rigorous season immured in their retreats. As soon as they perceive the first advances of the cold, they prepare to mitigate it's effects by rolling themselves up in balls, and thus exposing their smallest surfaces to the weather. But it frequently happens that either the warmth of the sun, or an accidental transition from cold to heat, thaws their nearly stagnant fluids, and awakes them from their temporary lethargy; on such occasions, their provisions being at hand, they are not under the necessity of searching for the means of subsistence at the hazard of their lives. In this manner they usually continue, sometimes asleep, and at others awake, during five months of the year; and, as they seldom venture from their abodes, they are of course but rarely seen. They usually bring forth three or four at a time; but that only once a year, viz. in the spring season.

Buffon distinguishes these animals into three species; namely, the greater Dormouse, called the loir; the middle, termed the lerot; and the less, denominated the muscardin: but we shall adopt the divisions of the ingenious Pennant, whose accuracy with respect to subjects of natural history, we are inclined to think, justly entitles him to pre-eminence.

DORMOUSE, COMMON. The eyes of this species are full and black; the ears are round and naked; the tail is two inches and a half long, and

pretty hairy towards the extremity; the body is about the size of that of the common mouse, but rather more plump; and the colour is a tawny red, except on the throat, where it is white. This variety inhabits almost every part of Europe. It generally builds it's nest near the bottom of a thick hedge, either with moss or the leaves of trees; and subsists on nuts, which it eats in a kind of erect posture, after the manner of the squirrel. At the commencement of the brumal season, it rolls itself up in it's retreat, where it lies in a torpid state till revived by the genial heat of the returning spring. Sometimes, however, when the weather proves unusually mild in winter, it seems to revive; but when that motive ceases, it very soon relapses into it's former state.

DORMOUSE, STRIPED. This animal is a native of the northern parts of Asia, and also of America. When deprived of all other means of escape, it will ascend a tree: however, it usually burrows under ground, where it forms a habitation with two entrances, that it may be furnished with the means of egress should one or other of the passages be accidentally stopped up. This retreat, which is very ingeniously contrived, resembles a long gallery with diverticles on each side, each terminating in an enlarged chamber, which serve as granaries for the animal's winter provisions: in one, acorns are deposited; in another, maize; in a third, hickory nuts; and, in a fourth, chinquapin chefnuts, which seem to be their favourite aliment.

These creatures seldom venture abroad during the winter, at least while their provisions hold out; but when they happen to fail, which is sometimes the case, they make their way into cellars where apples are lodged, or into barns stored with maize, and there make great havock. During the maize-harvest, they bite off the ears, and cram their mouths so full with that kind of corn, that their cheeks appear greatly distended. It has already been observed, that they shew a great predilection to particular sorts of food; and accordingly, if they happen, after filling their mouths with rye, to meet with wheat, they instantly relinquish the former, in order to feast on the latter. They are extremely wild, bite very severely, and seem incapable of being tamed.

The ears of the Striped Dormouse are plain; the ridge of the back is marked with a double black streak; and each side with a pale yellow stripe, bounded both above and beneath by a black line. The head, body, and tail, are of a reddish brown colour; the breast and belly are white; the nose and feet are a pale red; and the eyes are full and prominent.

DORMOUSE, FAT, THE LOIR OF BUFFON. The body of this animal is covered with soft ash-coloured hair; the belly is whitish; the tail is surrounded with very long hair; the ears are thin and naked; the length, from the nose to the tail, is nearly six inches, that of the tail being four and a half; and the body is thicker than that of the squirrel.

This species, which inhabits the southern parts of Europe, and also the south-west parts of Russia, lives in the hollows of trees. It feeds on fruits and acorns; and remains in a torpid state during the winter season. The flesh of this creature was reckoned a peculiar delicacy among the ancient Romans; and we are informed that it is at present much esteemed in some parts of Italy.

DORMOUSE, GARDEN. The eyes of this animal are surrounded by a large black circle, reaching almost

almost to the bases of its ears; behind which there is a large spot of the same colour. The head and body are of a tawny colour; the throat and belly are white, tinged with yellow; and the tail is long, the hairs at the beginning being very short, and bushy at the extremity. It measures five inches from the nose to the tail; which last is about four inches in length.

The Garden Dormouse inhabits the southern countries of Europe; and is also found in magpies nests and hollow trees about the banks of the Volga and other temperate parts of the Russian dominions. Delighting in all sorts of fruit, it is very destructive to gardens; and generally fixes its abode in a hole of some decayed wall, where it remains in a state of torpidity during the winter. It has a rank smell, like that of the rat; and usually brings forth five or six at a time.

DORMOUSE, EARLESS. The head of this species is flat; the nose is obtuse; the eyes are full and black; and the upper lip is divided. The apertures of the ears are scarcely visible; the whiskers are long; the toes are large and distinct; and the claws are very long. The head, back, sides, and front of the fore-legs, are of a pale ferruginous colour intermixed with black; a black line extends on each side from the shoulder to the hind-parts, and above each eye there is another; the belly and feet are of a dirty white hue; the tail is black in the middle, and hoary on the sides; and the hind-legs are black behind, and naked.

This animal, which inhabits the interior parts of Africa, never climbs trees, but burrows under ground; and feeds on bulbous roots, especially potatoes, of which it appears exceedingly fond. It frequently walks on its hind-feet; it is very tame and inoffensive; and it covers the orifice of its nest with various materials, the better to conceal the inhabitants.

DORSCH. A small fish of the cod kind frequently caught in the Baltic, though but rarely in other seas; and known among authors by the name of *asellus varius*, or *friatus*. It is remarkable for having the softest and smoothest skin of all the cod kind; nevertheless, it is not destitute of scales. It usually grows to about a foot in length; and approaches very nearly to the whiting pollack; but with this difference, that it is furnished with a beard. Its flesh is delicate and wholesome.

DOTTEREL. The name by which the *morinellus* is commonly known in most parts of Great Britain. This bird is about ten inches long, and the expansion of its wings is nineteen and upwards. The female weighs about a quarter of a pound; but the male is somewhat lighter, as well as smaller. The bill is black, slender, and about an inch long; the forehead, top, and back of the head, are black, except that there are some white spots in the former; and a broad white line over the eyes surrounds the whole. The cheeks and throat are white; the neck is of a cinereous olive-colour; the middle of the feathers on the back, as well as the coverts of the wings and tail, are olive, the edges of the wings being of a dull deep yellow; and the quill-feathers are brown, except the exterior side of the first feather, which is white. The tail is composed of twelve brown olive-coloured feathers, barred with black near their ends, and tipped with white. The breast and sides are a dull orange; and immediately above them runs a white line, bounded by a very narrow black one. The belly is black; the thighs and vent-feathers are white; the legs are a yellowish

green; and the toes are dusky. The colours in the female are generally more dull than those in the male; the white line over the eye is smaller; the crown of the head is mottled with brown and white; the transverse white line on the breast is wanting; and the belly is mixed with black and white.

Dotterels inhabit Lincolnshire, Cambridgeshire, and Derbyshire. On Lincoln Heath, and on the moors of Derbyshire, they are migratory, appearing in small flocks about the latter end of April, and continuing only till the middle of June; during which time they grow very fat, and are esteemed delicious food. In April and September, they frequent the Wiltshire and Berkshire downs; but their breeding-places, as well as their winter retreats, are totally unknown.

The Dotterel, which is an extremely simple animal, is sometimes taken in the night-time by candle-light. If the fowler stretches out an arm, the bird also expands one of its wings; and if he moves a foot, the Dotterel does the same: in short, this silly bird imitates its insidious enemy to the utmost of its power, while he is busied in spreading the net for its destruction. However, since the universal use of fire-arms, this mode of catching Dotterels has been discontinued, as proving too tedious; and, at present, the sportsman watches the arrival of his prey, and dispatches it with his fowl-piece.

DOTTEREL, SEA, OR TURN-STONE; the *morinella tringa* of Linnæus. This bird frequents the Cornish coasts. The bill is straight, black, near an inch long, thick at the base, sharp at the point, somewhat depressed, and pretty hard. The upper part of the body, except the back, which is white, and the top of the breast, are of a brown colour; the lower parts, except the breast, are of a snowy whiteness; and on the rump there is a large transverse black mark. Near the joint of the wings there is a white spot; the lower parts of the tail-feathers are white, and the upper black; and the legs are short, and of a saffron colour.

DOUC. A species of monkey peculiar to Cochinchina. It grows to the size of the baboon; and has a very long tail, and a flat face like that of the ape. It likewise resembles the American monkey, in having no callosity on its posteriors. Thus it appears in some measure to unite these different genera of animals, and to link the monkeys of the old continent with those of the new.

DOVE. A beautiful genus of birds, distinguished from the pigeon tribe only by the diversity of their names, all of them deriving their origin from the Stock-Dove; the English name implying the stock or stem from which the other domestic kinds have been propagated.

Stock-Doves breed either in the holes of rocks, or in excavated trees of the forests. All other birds of the pigeon kind, like rooks, build their nests in the most towering branches: but this species generally resides in artificial cavities; and, from the united allurements of ready provisions and a numerous society, easily submits to the human species. Still, however, it preserves its native hue for several generations; and becomes more variegated only in proportion as it deviates from the original simplicity of its sylvan colouring.

DOVE, RING. This bird is called *columba palumbus* by Linnæus, *palumbus torquatus* by Aldrovandus and others, and *phassa* by the Greeks. Its beak is yellow; its feet are naked and red; and

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it's legs are feathered almost down to the feet. The head, the back, and the coverts of the wings, are of a blueish ash-colour; the lower side of the neck and the breast are a purplish red dashed with ash-colour; the upper part of the neck is adorned with a very regular and beautiful white circle, from which the bird receives it's name; and the whole neck, both above and below it, is delightfully variegated with changeable colours, according to the light in which they are viewed. The belly is a dirty white; the greater quill-feathers are dusky, the rest being cinereous; and beneath the bastard-wing there is a white stroke which points downwards.

The Ring-Dove being the largest bird of it's kind in Britain, is easily distinguished by it's size. It weighs about twenty ounces; it's length is eighteen inches, and it's breadth thirty. It seldom flies singly, but in large flocks; and it subsists on ivy-berries and other vegetable substances. These birds build their nests in the branches of trees; but all attempts to domesticate them have hitherto proved ineffectual. About the commencement of the winter season they assemble in large flocks, and desist from cooing; but they pair again about the beginning of March.

DOVE, TURTLE. This is a very beautiful little bird of the pigeon kind, found in several parts of England, but particularly in the western counties. The head, neck, and back, are, like the common pigeon, of a blueish grey colour, with an admixture of a reddish brown near the rump and at the bottom of the neck; the belly is white; the breast and throat are a fine vivid purple, except that the verge of each feather is yellow; and the sides of the neck are variegated with a sort of ringlet of beautiful white feathers having black bases. The tail is about three inches and a half long, the two middlemost feathers being dusky brown, and the others black with white tips; and the extremities and outer webs of the exterior feathers are wholly white. The irides are a fine yellow; and a beautiful crimson circle encompasses the eye-lids. The chin and forehead are whitish; and on each side of the neck there is a spot of black feathers prettily tipped with white.

This bird weighs about four ounces. It feeds on hempseed, and other vegetable substances; and, being remarkably shy, breeds in the most retired situations. It is faithfully attached to it's mate, even to a proverb; and, if we may credit the opinion of the vulgar, when either of them pays the debt of nature, the survivor lives in a state of solitude ever after.

DOVE, TURTLE, INDIAN, OF ALDROVANDUS. The female of this species is entirely white, except the feet, which are red; and the bill, which is black; and the male is wholly of a light red colour, and of the size of the common pigeon. The irides are of a reddish saffron hue; and a narrow black ring surrounds the neck.

DOVE, TURTLE, INDIAN, OF HERNANDEZ. This species is somewhat bigger than the sparrow. The upper part of the body is brown, except that the feathers are edged with black; the fore-parts of the wings are partly black, and the others of a dusky colour; the end of the tail is tinged with white and brown promiscuously; and the feathers which cover the lower part of the body are white, terminating in black lines. The head is small; the bill is black; and the legs and feet are whitish. These birds, which frequent mountainous situations, usually grow very fat, and are esteemed delicious food.

DOVE, TURTLE, OF BARBADOES. This bird is about the size of the lark; and, from it's resemblance to the Indian Turtle-Dove of Hernandez, is by many naturalists supposed to be the same. The irides are of a golden hue; and all the feathers on the upper part of the body are of a darkish ash-colour, with lunated blackish edges. The prime-feathers of the wings appear reddish when the bird is in the act of flying; the tail is a dusky ash; the feathers on the belly are white, with dusky edges, in the shape of a crescent; and the feet are white.

DOVE, GREEN-WINGED. This species, which is a native of the East Indies, is one of the most beautiful of the Dove kind. The bill, which is nearly an inch in length, is of a scarlet colour from the point to the nostrils, and of a pale blue from the nostrils to the head. The eyes are darkish; and from the forehead, which is white, proceed two lines of the same colour above the eyes towards the hinder part of the head. The crown of the head is blueish; the sides of the head, the neck, and the breast, are rosaceous; the belly is of a dirty orange hue, which insensibly blends itself with the rose colour of the breast; the upper sides of the wings, when viewed in certain lights, display a beautiful green, and in others assume the tinge of bright copper or gold; the larger quills are a dirty black; the shoulder or ridge of the wing is marked with small white spots; the sides under the wings are of the same colour with the belly; the covert-feathers are a dark cinnamon; the interior webs of the quills are in some parts tinged with a common cinnamon; but, in others, with a dusky black. The middle of the back is a dirty brown; the lower part of the back, and the feathers which cover the tail, are cinereous; the middle feathers of the tail are black, and the outer ones cinereous, with black tips; the legs and feet are reddish; and the claws are a light brown.

DOVE, LONG-TAILED. The head of this bird is small in proportion to the body; the neck is of a moderate length; the body is pretty long; the tail is longer than the whole body; the wings are of a middling length; the bill is a little incurvated at the point, of a light horn colour about the nostrils, and darker towards the point; the irides are dark; and a white line runs from the corner of the bill to the eye, which it encircles. The fore-part of the head, both above and beneath the bill, is yellowish, the hinder part being a light pigeon blue; which colours lose themselves in each other when united. There is a pretty large black spot exactly under the ear-holes; the fore-part of the neck and breast are of a blossom-colour, changing gradually towards the belly into a clay; the lower part of the belly, the thighs, and the coverts under the tail, are a dull yellow with an admixture of cinereous; the superior part of the neck, the back, and the upper sides of the wings, are a dark, dirty brown; the scapular feathers between the back and wings, as well as some of the quills and coverts next the back, are marked at their ends with oval black spots of different magnitudes, in number about ten or twelve on each side. The rump, and the feathers which cover the tail, incline more to an ash-colour than the back and wings; the middle feathers of the tail are black, and very long, the side ones gradually diminishing in length; so that the exterior feathers on each side are not above half as long as the middlemost, but are of a blueish ash-colour, having bars of black near their tips: the tips themselves are white; the legs and feet,

as is common in the Dove kind, are red; and the claws are brown. The extreme length of the tail, which is shaped like that of the magpie, is the most singular feature in this species, which appears to be a native of the West Indies.

DOVE, TRANSVERSE STRIPED. This bird is one of the smallest of the Dove kind. The bill, which is shaped as in the rest of the pigeon tribe, is of a light horn-colour; from the nostril to the eye, and round the latter, runs a narrow white stroke; the irides are a blue grey; the forehead round the eyes, the cheeks, and parts under the bill, are light blue; the crown and hinder part of the head are red, or rather ruflet; the fore-part of the neck, the breast, the belly, and the thighs, are a faded rose or blossom-colour; the feathers under the tail are white; the sides of the neck, and of the body under the wings, are blueish, thick set with very fine transverse lines of a darker hue; the upper side of the back, the neck, the wings, and the tail, are cinereous; the hinder part of the neck, the back, and covert-feathers of the wings, are marked with very distinct black transverse lines, which are continued from wing to wing across the back, with small interruptions; the greater quills are somewhat darker than the coverts of the wings; the tail is more dusky than the body, its tip, for about an inch deep, being white; the legs and feet are a pale red; and the claws are brown. This Dove, which is a native of the East Indies, was first described by the accurate Edwards, who copied it from a living subject in the possession of Sir Charles Wager.

DOVE, GREENLAND. This bird seems to be a species of diver, or the colymbus grylle of Linnæus. The bill is an inch and a half long, straight, slender, and black; on each wing there is a large bed of white, which in young birds is spotted; and, except the tips of the lesser quill-feathers, and the interior coverts of the wings, which are white, the rest of the plumage is black. In winter it is said to change to white; and a variety, spotted with black and white, is frequently seen in Scotland. The tail is composed of twelve feathers; and the legs are red.

These birds, which are always seen hovering over the sea except during their breeding season, frequently elude the skill of the best marksman, on account of their dexterity in diving under the water. The Welsh denominate this bird the casganllongwr, or the sailor's hatred, from a superstitious notion that its appearance always indicates an approaching storm. It visits the isle of St. Kilda, one of the Hebrides, in the month of March; and constructs its nest under ground, where it lays one greyish egg, marked with cineritious spots.

DOVE, BROWN INDIAN. This bird, which is about the size of the small white Dove, is commonly bred in a cage. The bill is of a dusky black colour; the circle round the eyes is a very bright scarlet inclining to gold; beyond which there is a fine blue inclosure, which joins to the corners of the mouth, and terminates backwards in angles a little behind the eyes. The fore-part of the head, the neck, and the breast, are a light yellowish brown; and the hinder part of the head and the neck are a darker brown. Beneath the ears, on each side, there is a long black stroke transversely placed, and composed of very short plumage, the feathers beneath these marks having a greenish and golden lustre by turns when viewed in different lights; and the remainder of the hind-part and sides of the neck have a purplish gloss.

The upper part of the back, the covert-feathers of the wings, and some of the dorsal quills, are a dark reddish brown, varying sometimes to a blueish cast; the greater quills are black, with lighter coloured tips; the middle quills are of the same hue, with pretty deep white tips; and the coverts of the quills have also deep tips of white, which form an oblique transverse bar. The insides of the wings, the belly, and the covert-feathers under the tail, are a light blueish ash-colour; the lower part of the back, and the upper covert-feathers of the tail, are a dark ash-colour; the two middle feathers of the tail are of the same brown hue with the back and wings; the other feathers on each side are a dark cinereous colour, with white tips about an inch deep; the legs and feet are covered with red scales; and the claws are brown. The Brown Indian Dove is a native of the East Indies.

DOVE, VIOLET, RED-HEADED, OF SONNERAT. This species, which inhabits the isle of Antigua in the Oriental ocean, is about the size of the pigeon called jacobin by French naturalists. A fleshy membrane of a vivid red colour extends on each side of the head from the base of the bill beyond the eye, which it encircles; the top of the head is covered with a fine plumage which forms a kind of bright red cap; the neck, the top of the back, and the beginning of the breast, are a blueish grey, which becomes more bright on the lower part of the breast; the back, the belly, the wings, and the tail, have the appearance of black velvet, which changes to purple, and reflects a blueish tinge; the feet and beak are grey; and the irides are composed of a large red circle, and one more narrow which is grey.

DOVE, GREEN, OF SONNERAT. The head of this species, which is about the size of the European wood-pigeon, is of a greyish cinereous hue, and the neck a bright lilach. There is a large orpine-coloured spot on the breast; the coverts of the wings are an apple green encompassed by a longitudinal yellow streak on the outer side; the greater quills of the wings and the tail are black; the belly is a yellowish green; the beak is short and greyish; the irides are a sky-blue surrounded with a reddish circle; and the feet are of a dull golden colour. This beautiful bird, which is a native of the isle of Luçon, was first described by Sonnerat in his Voyage to New Guinea.

DOVELLA. An appellation given by some naturalists to the fish called donzellina by the Italians; and, according to Artedius, a species of the labrus; which author distinguishes it by the name of the variegated labrus with two large teeth in the upper jaw.

DOZELLINA. An appellation given by some naturalists to the common mustella, known in England by the names of the sea-loche and whistle-fish.

DRACÆNA. A species of American lizard.

DRAGON. A fabulous animal which credulity has represented under the similitude of a serpent with wings and feet. The ancients have given a variety of descriptions of this imaginary creature, and ascribed to it very numerous and contradictory qualities; to all which they were probably led by some extraordinary animals of the serpent kind, whose singularity, size, or figure, attracted their attention, and gave scope to their invention.

DRAGON-FLY. A numerous genus of four-winged flies, belonging to the order of neucoptera in

in the Linnæan system; and known in England by the name of Adder or Dragon Flies. The characters are these: they are furnished with jaws; the antennæ are shorter than the thorax; the wings are extended; and the tail of the male is terminated by a kind of hooked forceps.

These insects are the most various as well as most beautiful of all the Flies which either adorn or diversify the face of nature; they are of green, blue, white, crimson, and scarlet colours: in some a variety of the most vivid tints are united; and even all the combinations of shades to be found in the rainbow are sometimes exhibited in one single animal. They are easily distinguished from all other insects by the length of their bodies, the largeness of their eyes, and the beautiful transparency of their wings. In summer, they are seen flying with great rapidity near almost every hedge and stream: they sometimes settle on the leaves of plants, when an attentive observer may contemplate their beauties; and at other times they continue on the wing for hours together, without discovering the smallest signs of lassitude. Though there are various species of this genus, they all agree in the most striking parts of their history; and therefore one general description will suffice to display the nature of the whole.

All these Flies are produced from eggs deposited in the water, where they remain for some time without any seeming life or motion. They are ejected from the female in clusters resembling bunches of grapes; and, sinking to the bottom by their specific weight, continue in that state till the young ones acquire strength sufficient to break their shells, and to separate from each other. The form under which they first indicate signs of animation is that of a six-legged worm, which bears a strong resemblance to the Dragon Fly in it's winged state, except that the wings still remain concealed within a sheath peculiar to this animal, folded up into each other; while all the colours and varieties of painting appear transparent through the skin. After quitting the eggs, these animalcules continue in the water, where they creep and swim about with a kind of deliberate motion. Being very quick-sighted, they instantly descend to the bottom on the smallest approach of danger; in which situation they subsist on soft mud, and whatever glutinous or earthy substances come in their way.

On the arrival of that period in which the transformation of this insect from it's reptile to it's flying state commences, it withdraws from the liquid element to some dry situation, among grass, wood, or stones, where it fixes it's acute claws with great firmness, and for a short time remains wholly immoveable, as if contemplating it's approaching change. Soon afterwards, the skin first divides itself on the head and back, from which opening the real head and eyes appear; and, lastly, the six legs; while, in the mean time, the hollow slough of the legs continues to adhere to it's place. The inclosed animal then creeps forwards by degrees, disengaging first it's wings, and then it's body, from the surrounding skin; and, proceeding a little farther, again rests for some time as if divested of locomotion. The wings, which before were moist and folded, begin gradually to expand themselves, and to smoothe those plaits which are placed against each other like a closed fan. The body is likewise insensibly extended, till each of the limbs acquires it's proper size and dimensions; all which

surprising and difficult operations are effected by the energy of the blood and the circulating humours.

The insect being at first incapable of using it's new wings, it is therefore under the necessity of remaining in the same place till it's limbs are dried by the surrounding air. However, it is soon capacitated to enter on a more noble sphere of life than it had hitherto enjoyed; and, from creeping slowly, and living accidentally, it now wings the air, and selects it's food from the various stores of nature. Indeed, no animal is more amply fitted for motion, subsistence, and enjoyment, than the Dragon Fly; in order to which, nature has furnished it with two large eyes, which occupy almost the whole space of the head, and resemble shining mother-of-pearl. It has four expansive wings, with which it can turn itself with prodigious velocity; and, in order to assist these, it is furnished with a very long body, which directs it's motions after the manner of a rudder.

The wings of these insects being long, and their legs short, they seldom walk, but are generally observed either at rest or in the act of flying: for this reason also they always alight on dry branches or shrubs; and, when they have sufficiently refreshed themselves, pursue their erratic way. Thus they adorn the most delightful season of the year with a profusion of beauty, lightly traversing the air in a thousand directions, and expanding their most charming tints to the beams of the sun. The gardens, the forests, the hedges, and the rivulets, are animated by their sports; and perhaps there are but few individuals, whose early years have been spent in the country, who have not at intervals amused themselves with the pursuit of some of these beautiful insects. But while they appear to us so idly and innocently employed, they are in reality the greatest tyrants of the insect tribes; and, like the hawk among other birds, are only perambulating the aerial regions in quest of prey. They are among the strongest and most courageous of all winged insects; nor is there one, however large, that they will not attack, and frequently with success: the blue-fly, the bee, the wasp, and the hornet, are their constant prey; and even the butterfly, with all it's expansion of wing, is often arrested by them, and sacrificed without mercy. Their appetite seems to be unbounded; they spend whole days in pursuit of other insects; and have been frequently known to devour three times their own bulk in the space of a single hour. When flying, they dart suddenly on their prey, seize it with their six claws, and easily tear it to pieces with their teeth, which are capable of inflicting very dangerous wounds.

However, male Dragon Flies do not continue on the wing for the sole gratification of the appetite of hunger; they are also extremely salacious, desiring the females with great ardour. When the vernal sun begins to warm the face of nature with his genial beams, the males are assiduously employed in seeking their mates; and no sooner does a female appear, than two or three males pursue her, and endeavour to captivate her by all the little arts and kindnesses of which they are capable. The instrument of generation in the male is very differently situated from that of any other insect, being placed immediately under the breast, and consequently, at first view, appearing wholly incapable of coming in contact with the sexual part of the female; which, as in other insects, lies in the tail. To effect this junction, however, nature has

taught the male a very peculiar mode of procedure: and Homberg, of the Parisian Academy, who has furnished us with many remarkable particulars relative to these animalcules, thus describes the whole process of this strange contact. 'As soon as the male perceives his mate; and finds himself sufficiently near, he seizes on the back of her head by surprise; and darting his claws into it, twists his forky tail round her neck, and in this manner fixes himself so very firmly and closely, that no efforts of the female can disengage him. In vain does she fly from one branch to another; he obstinately maintains his hold, often for two or three hours successively. When he flies, she is also constrained to fly with him, but he appears to be the sole director of the way; and though her wings seem to be in motion, she is nevertheless guided solely by his movements. As yet, however, the business of impregnation is unaccomplished, for to this the female must contribute. Wearied with importunity, she seems at last to comply; and, inclining the end of her tail to that part of the male's breast in which the instrument of generation is placed, both members meet, and the eggs of the female receive the necessary fecundation: in the space of an hour or two afterwards, she flies to some neighbouring pool, in order to deposit them; and in this situation they continue in a reptile state for a whole year; after which they assume the beautiful colours of the winged parent.'

Linnaeus, with his accustomed precision, divides Dragon Flies into the middle-sized, the small, and the great species; in each of which classes he describes several varieties.

DRAGON FLY, with a silky, shining body, and wings of a yellowish dusky colour; termed by Ray the middle-sized libella with a blueish green body, and dun wings without spots. This insect, which frequents the sides of rivers, is of a blueish colour inclining to black; and the wings are a yellowish brown, without any of those specks on their external edges which are usually seen in the other kinds.

DRAGON FLY, with a blue shining body, and wings of a blueish green, dusky at the points, and without spots on the edges; called by Ray the middle-sized libella with a blue body, and the greatest part of the wings of a blackish blue colour. This species, which frequents rivers, is in figure like the former, except that the wings are a blackish blue, with pale brown tips; and that the tail is corneous at the extremity.

DRAGON FLY, with a greenish blue body, dusky wings, and white spots on their edges; called by Ray the middle-sized libella with a green body, and wings of a dun-colour marked with small white spots near the extreme angle. The body is a lucid green; the feet are black; and the wings are brown, and marked on their edges with white oblong spots. Some naturalists have supposed this insect to be the female of the preceding species.

DRAGON FLY, with a silky shining body, and the wings of a dusky gold colour marked with black spots; termed by Ray the middle-sized libella, with a body partly green, and partly blue; and the wings marked in the middle with very large blueish black spots. The body is a bright blue; the feet are black; half of the wings next the point are a blueish black; the points are a gilded brown; and the other half of the wings near the base are a gold-colour.

The foregoing species are all of the middle size. The following are of the small class.

DRAGON FLY, with a silky body, and the wings marked on their edges with dusky spots; called by Ray the lesser libella with reticulated wings, a green back, and whitish furrows. The back of this insect, which flutters on the sides of marshes, is of a copper colour; the wings, which shine as if gilded, and are marked on the edges with rhomboidal brown spots, are composed of two nerves peculiar to this species; the breast, belly, and sides, are of a livid colour; the eyes are cinereous, but brown above; the head, as far as the back, is of a copper hue; and the antennæ are black, short, and clubbed at the last joint.

DRAGON FLY, with a flesh-coloured body, and wings having dusky spots on their edges; termed by Ray the middle-sized libella, with two black spots near its incisures. This species greatly resembles the preceding both in size and shape; but near the furrows of the belly there are black lines or characters, and brownish spots on the edges of the wings.

DRAGON FLY, with a silky body, and the edges of the wings marked with black spots; called by Ray the libella with a blueish livid body. The wings of this species are white; and the upper part of the body is of a greenish shining blue.

DRAGON FLY, with a blue body variegated with cinereous, and black spots on the edges of the wings; named by Ray the lesser libella with short wings, and a blue body marked with transverse black spots. The size and shape of this insect resemble those of the preceding; but the wings are white; and the joints of the belly, when viewed before, are cinereous; but, when seen behind, of a shining blue.

The following are of the large class of Linnaeus.

DRAGON FLY, with double spots on the edges of the wings; called by Ray the greatest libella, with a long, shining, slender, smooth, greenish belly, at the beginning, but becoming more tumid near the end. This species is distinguished from all the others by two spots on the wings, which are white, except towards their bases, where they are yellow, and underneath them of a blackish hue.

DRAGON FLY, with white wings, but yellow at their bases; termed by Ray the greatest libella, with a broad, short, yellow belly. This insect is yellow on the back, and black underneath; and on each side there are two oblique yellow lines. The forehead is green; the eyes are grey; the feet are black; and the wings, at their bases, are rust-coloured.

DRAGON FLY, with a dusky body and white wings; called by Ray the greatest libella, with a yellow, narrow body; but having no dusky spots at the bases of the wings. The body of this species is black; the wings are white, with reddish brown spots on their edges; and the vent is destitute of any appendage.

DRAGON FLY, with yellow sides and white wings. This variety is commonly seen sporting on the water. The sides of the breast and belly are of a yellow colour; and the specks on the edges of the wings have a brown rusty hue.

DRAGON FLY, with a green shining breast, yellow lines, pale wings, and a dusky belly; called by Ray the great libella with a short blue belly. The head and breast are of a lucid green colour; the eyes are brown; there are two yellow lines on the sides.

sides of the breast; the wings are a whitish yellow at their bases; and the marginal spots are brown.

DRAGON FLY, of a gilded green colour, with pale wings and black feet. This species resembles the former, except that the tail of the male is den- tated, that of the female being composed of leaves shaped like lances.

DRAGON FLY, with yellowish wings, the sides of the breast marked with yellow lines, and the tail comprised of two leaves; called by Ray the libella with a long slender body and yellowish wings. As to any farther description of this species, natura- lists are silent.

DRAGON-FISH. The Dragon-Fish, which is a species of the trachinus or cottus, is commonly known in England by the name of the weever, which seems to be a corruption of the French la vive; so called, according to Bellonius, from it's being capable of subsisting a considerable time out of it's native element. It frequently grows to the length of twelve inches. The irides are yellow; the under jaw is longer than the upper, sloping very much towards the belly; and the teeth are small. The back is straight; the sides are compressed; the belly is prominent; the lateral line is even; and the covers of the gills are armed with very strong spines. The first dorsal fin is composed of five very strong spines, which, as well as the interven- ing membranes, are tinged with black; and the se- cond consists of several soft rays, commencing just at the end of the first, and continuing almost to the tail. The pectoral fins are broad and angular, and the ventral small; the vent is placed remarkably forward; the anal fin extends to a small distance from the tail, and is a little hollowed in the mid- dle; the sides are longitudinally marked with two or three dirty yellow lines, and transversely by num- bers of small ones; and the belly is of a silvery hue.

The qualities of the Dragon-Fish seem to have been well known to the ancients, who have enu- merated them without exaggeration. The wounds inflicted by it's spines, which are exceedingly pain- ful, are sometimes attended with a violent inflam- mation and most pungent shooting; and, at others, with very malignant symptoms. According to the opinion of the vulgar, these disagreeable pre- sages do not originate from the small wound which this fish is capable of inflicting, but a certain ve- nom proceeding from the animal itself. Whether this opinion is founded in truth or conjecture, we have not been able to ascertain. In order, how- ever, to a cure, some fishermen rub the part af- fected for a considerable time with sea-sand; and others, with stale urine warmed: but should the wound become dangerous either from the neglect or constitutional infirmities of the patient, the ap- plication of sweet oil, and the internal use of opium and treacle, are judged expedient.

This fish buries itself in the sand, leaving only it's nose uncovered; and, notwithstanding the fore- going noxious quality ascribed to it, the flesh is reckoned pleasant and salubrious.

DRAGON-SHELL. An appellation given by the virtuosi to a species of concamerated pa- tella, or limpet. The top is much bent, and ex- ternally cinereous, but internally of a bright and elegant flesh-colour. It is frequently found stick- ing to the back of a tortoise, as common limpets adhere to the sides of rocks; and some have been found affixed to large shells of the pinna marina brought from the East Indies.

DRAGONET. Linnaeus has given this ge- nus the name of callyonymus, a fish mentioned by several of the ancients; but their descriptions of it are so very incomplete, as to render it impossible to determine with certainty what species they in- tended. The ingenious Pliny makes it synony- mous to the uranoscopus, very frequent in the Ita- lian seas, but extremely different from our Dra- gonet, which term is used to express the dracuncu- lus of Rondoletius and others. This fish is found as far north as Norway and Spitzbergen, and as far south as the Mediterranean seas; but it is frequently caught on the Yorkshire coasts; and is sometimes found in the stomach of the cod.

DRAGONET, COMMON. This species, to which Pennant gives the epithet of gemmefus, grows to the length of ten or twelve inches. The body is slender, round, and smooth; the head is large, and depressed at the top; and in the hind-part there are two orifices, through which it breathes, and ejects the water received by it's mouth after the manner of setaceous fishes. The apertures of the gills are closed; and on the end of each of the bones which covers them there is a very singular trifurcated spine. The eyes are large, and placed near each other on the superior part of the head; the pupils are of a rich sapphirine blue colour, and the irides a fiery carbuncle. The upper jaw projects much farther than the lower; the teeth are very minute; and the mouth is uncommonly large. The pecto- ral fins are roundish, and of a light brown hue; and the ventral ones, which are placed before them, are very broad, and consist of five branched rays. The first ray of the dorsal fin is setaceous, and ex- tends almost to half the tail; but the rays of the second dorsal fin are of a moderate length, except the last, which is protruded far beyond the others. The anus is situated near the centre of the belly; the anal fin is broad, of which the last ray is the longest; the tail, which is rounded and long, con- sists of ten rays; the lateral line is straight; and the membranes of all the fins are extremely thin and delicate. The colours of this fish, which are yel- low, blue, and white, exhibit a very beautiful appearance: the blue in particular is inconceiva- bly splendid, and glows with a brilliancy little in- ferior to that of the diamond.

Pontoppidan calls this species the flying fish; but whether it makes use of any of it's fins to raise itself out of the water, as he seems inclined to be- lieve it does, we have not been able to determine with certainty.

DRAGONET, MEAN. This species is greatly in- ferior to the former with respect to the beauty of it's colours; being of a dirty yellow hue, mixed with white and dusky spots; and the belly is entirely white. It grows to the length of six inches and a half. The head is compressed; the forehead slopes down to the nose; the eyes are large, and almost contiguous; the mouth is small; and the teeth are very minute. Over the gills there is a strong broad trifurcated spine; the first dorsal fin has four rays, and the second ten; the pectoral fins consist of twenty rays of a ferruginous colour spotted with a deeper tinge of the same; and the ventral of five broad branched rays, resembling those of the com- mon Dragonet. The anal fin, which is white, has ten rays; and the tail has the same number. In both species they are trifurcated at their extre- mities; and the ray next the anal fin is very short in both.

DRAGOON. The name of a small bird of the

the carrier-pigeon kind, called by Moore columba tabellaria minima. It seems to be a mongrel breed between the tumbler and the horseman species. This race increases prodigiously; and as it is lighter than the horseman, it is supposed to fly several miles with more expedition, though the former outstrips it at last. One of these pigeons, it is said, flew from St. Edmundsbury to London, being seventy-two miles, in the space of two hours and a half.

DRILL. An appellation given by Purchas to the ourang-outang, or wild man of the woods. See APE, GREAT.

DROMEDARY. An animal of the camel kind, from which it is distinguished by having only one bunch on it's back. It's hair is soft to the touch, and shorter than that of the ox, except on the head, throat, and top of the neck, where it is considerably longer. On the middle of the back also there are hairs nearly a foot in length, which, though naturally soft and flexible, yet standing in an erect posture, form the most conspicuous part of the bunch; but, when removed by the hand, the flesh scarcely appears more prominent than on the back of the hog. The head is small in proportion to the body; the upper lip is divided like that of the hare; the feet are each terminated by two small claws; and the soles of the feet are broad, very fleshy, and soft to the touch, though the skin is extremely hard and callous. There are callosities on the knees, the shoulders of the fore-legs, and on each of the hinder ones; and besides these, another much larger adheres to the breast, on an eminence which seems formed by nature to support it: these callosities appear as if intended for the support of the animal's ponderous body when it either stoops to rest or to be loaded. The stomach is very large; and, as in other ruminating animals, is divided into four parts: but it's structure is extremely singular; for, at the upper end of the second ventricle, there are several square holes, which are the orifices of a great number of bags placed between the membranes which compose the stomach; and these seem to be the receptacles of water kept for emergencies; the creature drinking a vast quantity at once, and then subsisting for several days, on particular occasions, without any other fluid.

Dromedaries being naturally very swift, they are frequently trained by the Arabians to racing, and sometimes to carry messengers with dispatches, who, by their means, can travel upwards of one hundred miles daily, for nine days successively, over burning deserts impassable by any other animals.

DRONE. The name of a large kind of bees, supposed to be the males of the swarm, which being unprovided with the necessary apparatus, never go in search either of wax or honey, but live on the stores collected by the rest. The common working-bees are generally considered as being neutral: and there is usually only one female in a hive; for, from numerous recent experiments, there is reason to conclude that the queen bee only lays two kinds of eggs, namely, such as are to produce Drones, and those from which the working-bees are to proceed.

This larger species of bees, called Drones, may be easily distinguished from the working tribes, by being nearly double their size. Their heads are round, their eyes are full, their tongues are short, and their bellies are broader and more obtuse than

those of the other classes: they are also of a darker hue, and make a louder noise in flying, by which they may be distinguished though unseen; and they are destitute of stings, which the honey-bees are universally known to possess.

On dissecting a Drone bee, there appear the most incontestible proofs that it belongs to the masculine gender. In this creature there is no appearance either of ovaries or eggs, nor any traces of the internal conformation of the labouring bees; but the whole abdomen is filled with transparent vessels, winding about in various sinuosities, and containing a white or milky fluid plainly anomalous to that found in the males of other animals, which is destined to impregnate the eggs of the females: and this whole apparatus of vessels, which bears a strong resemblance to the convolutions of the seminal vessels in other creatures, is evidently intended for the preparation and retention of this matter till the appointed time of it's emission. At the extremity of the last ring of the body, in the female, and in the working-bees, is placed the aperture of the anus, from which the stings of the latter are also protruded: but, with respect to the Drone, or male bee, the case is very different; for the extremity of that ring is closed, and the aperture of the anus is situated in the under part of it, about it's middle. On squeezing the body of the Drone, the penis is also forced out at this opening; which member is a small, slender, fleshy body, contained between two horns of a somewhat harder substance, which unite at their bases, but gradually diverge as they increase in length. When the pressure is long continued, there are thrust out at the same aperture some of the seminal vessels, and finally part of the milky fluid is extravasated; but this seems rather to flow from some lacerated vessel, than from any natural evacuation. These parts observed in all Drones, and in no other kind of bees, seem satisfactorily to evince the difference of sex. But one thing farther deserves to be remarked, namely, that though the penis evidently appears from the effect of pressure, it is with difficulty discovered on dissection; the reason of which seems to be their swelling when exposed to the air: and the penetrating Swammerdam supposes that, in order to this end, these members are furnished with a great number of tracheæ, which readily admit the air as soon as they are exposed to it's effects.

But though Maraldi, as well as Swammerdam, discovered in the structure of Drones some resemblance to the male organs of generation, and from thence referred them to the masculine gender; neither of these accurate and ingenious observers could ever notice them in the act of copulation: and the latter, for that reason, entertained a notion that the female, or queen bee, was fecundated without copulation; that it was sufficient for her only to approach the male; and that her eggs were impregnated by a kind of vivifying aura exhaled from the body of the male, and absorbed by that of the female. However, Reaumur imagined that he had discovered the actual copulation of the Drone with the female bee, and accordingly minutely described the process in his History of Insects.

Notwithstanding these observations, many of the ancients, as well as the moderns, have imagined that the eggs of the female bee are not impregnated with the male sperm, while in the ovaria of the insect; but that they are deposited, unimpregnated, in the cells; and that the male afterwards

wards ejects the male sperm over them, in the same manner as the generation of fishes is performed by the male's impregnating the spawn after it is emitted by the female. Maraldi, indeed, long since conjectured that this might be the case; and he was confirmed in his supposition by observing that a liquid whitish substance surrounded each egg at the bottom of the cell in a short time after it had been deposited; and that a great number of eggs, which had not been bedewed with this liquor, remained barren in the cells.

This method of impregnation has lately been established, beyond all contradiction, by the observations of Mr. Debrow of Cambridge. That gentleman having put some bees into a glass hive, together with a large number of Drones, observed, on the first or second day from the time that the eggs were deposited in the cells, which the queen generally lays on the fourth or fifth after being hived, that a great number of bees affixed themselves to each other, and formed a kind of curtain from the top to the bottom of the hive, probably in order to conceal the process of generation: however, he soon perceived several bees, whose size he was able to distinguish, inserting their posteriors, each into a cell, and sinking into it; but in a short time they retired, when he observed a small quantity of whitish liquor left in the angle of the base of each cell, containing an egg; which liquor was less liquid than honey, and possessed no real sweetness. In order to a farther elucidation of the fact, that the eggs were thus fecundated by the males, Mr. Debrow pitched on a swarm; and having separated the Drones, by shaking all the bees into a vessel full of water, and there leaving them till they were become quite senseless, replaced the working animals, together with their queen, as soon as they were recovered, by spreading them on brown paper, placed in the sun, within a glass hive. The queen very soon laid her eggs; some of which, at the end of twenty days, were hatched into bees; others withered away; and several of them were encrusted with honey. Suspecting that some of the males, having escaped his notice, had impregnated only a certain part of the eggs, he was anxious to ascertain the fact; and, to that end, he removed all the brood comb which was in the hive, and determined to watch the motions of the bees after new eggs were deposited in the cells. On the second day he perceived the operation commence; and, on taking out a piece of the comb containing two of the bees which had thrust their posteriors into the cell, he examined them, and found that they were destitute of stings; and on dissecting them, by the assistance of a microscope, he discovered the four cylindrical bodies, containing the whitish fluid previously mentioned, which Maraldi observed in the large Drones.

On a subsequent experiment, this gentleman having separated from the same parcel of bees all such as were destitute of stings, he found no less than fifty-seven of the number exactly of the size of common bees; which having pressed to death between his fingers, they yielded a small quantity of whitish liquor; after which he placed the remainder of the swarm in the hive. On the fourth or fifth day, the queen bee deposited the eggs in the cells, but no part of the process of impregnation could be discovered: the eggs, after the fourth day, instead of changing in the manner of caterpillars, remained in their original state, except that some of them were covered with honey; all

the bees forsook the hive, and attempted to get into another place in its vicinity, probably in quest of males; but the queen lost her life in this unequal conflict.

Mr. Debrow afterwards made another experiment, which may be considered as absolutely conclusive on this subject. He placed a certain part of the unimpregnated brood-comb under a bell glass, in which he confined a queen, and some common bees unaccompanied by any Drones; and the other part he put under another glass bell, with a few Drones, a queen, and a number of common bees. In the former glass the eggs remained in the same state, without any signs of impregnation; and when the bees were released on the seventh day, they all flew away. The Drones, in the other glass, were observed to impregnate the eggs in every cell on the first day after they were put in; the bees remained in the hive; and, in the space of twenty days, every egg underwent the necessary transformations, and a numerous young colony was thus produced.

It has long ago been observed, both by Maraldi and Reaumur, that there are Drones of the same size with the common bees; but the late curious and interesting experiments of Mr. Debrow, besides ascertaining this fact, have thrown new light on their importance and utility, and removed considerable difficulties which had obscured the process of generation among those animals. It is well known, that the larger Drones never appear in the hive before the middle of April; and that, before the end of August, when the principal breeding season terminates, they are no more, being destroyed, together with all their worms or nymphs, by the labouring bees, probably on account of saving the honey: and yet it is equally certain, that the bees begin to breed early in the spring, provided the weather is favourable; and that many broods are completed before the Drones appear. But if the smaller-sized Drones are suffered to remain, which in times of scarcity consume less honey than the others, they answer the necessary purposes of impregnating the early broods, and the larger Drones are produced against the season of pleasure and plenty. On the other hand, these smaller Drones are all dead before the end of May, when the larger ones appear to supersede their utility.

DRONE-FLY, or BEE-FLY. This insect so greatly resembles the common bee, that at first sight they are not easily discriminated. There are, however, several distinguishing characteristics between the species: the Drone-Fly has only two wings; and its body is shorter and thicker, and its head considerably larger, than those of the common bee. The Bee-Fly also invariably carries its wings parallel in their position, but without its body; whereas the bee usually crosses its wings on its back, and covers its body with them: however, this is not an universal practice with respect to the wings of the bee, though it is certainly a very common one. The Bee-Fly frequents flowers as well as the bee; and though it refrains from the labour of collecting wax, it is furnished with a trunk by which it absorbs honey: this trunk, which enables it to perform the operation, is destitute of teeth; and consequently the insect belongs to Reaumur's first general class of two-winged flies; and the conformation of its body, which is short and flat, refers it to his first subordinate genus of that class.

The most curious and extraordinary period of the life of this insect, is that which it passes before commencing a denizen of the sky. The usual exterior form of the fly-worms of this genus was long ago sufficiently known to the generality of naturalists; but they declined troubling themselves with any minute investigation of it, and appear indeed to have been ignorant that these creatures possessed several peculiarities worthy of attention. The substances among which they are found are the most offensive and nauseous; and the insects, in this state, belong to the class of those with variable heads. But their grand distinction from all others consists in their long and slender tails, which at different periods appear of distinct lengths; yet they are invariably longer than their bodies, round, smooth, extremely small at their extremities, and somewhat resembling those of rats; whence the whole class has sometimes received the appellation of rat-tailed worms.

But, in order to understand the essential properties of their tails, it is necessary first to acquire a knowledge of the worms themselves. These creatures having been usually found on dry ground, and only accidentally observed for a great number of years, prepossessed mankind with a notion that they were far less numerous than they really are; nor had any idea occurred that they inhabited the water. However, on examining vessels of that fluid in a corrupted and stinking state, they have been there found in great numbers, lying among the mud at their bottoms; and, on being removed, and immersed in water of a purer nature, they have soon evinced the necessity and utility of their long tails.

Notwithstanding these worms are capable of living in mud under water, it is certain that they are under a necessity of inhaling fresh air, like other water fly-worms: and to this essential purpose their long tails contribute; for while they lie buried in the soil, these members are extended upwards to the surface of the water; and, having apertures at their extremities, the air is thereby admitted into the bodies of the insects. It is, indeed, very amusing to observe these animals, after being put into water, quickly descending to the bottom, and as speedily thrusting up the extremities of their tails to the outside. From the circumstance of their being able to reach the surface, though from whatever depth, we may rationally conclude that they are endowed with the faculty of extending their tails at pleasure to any length: and the way to ascertain this conclusion seems very easy, namely, by increasing the depth of the water; for, as the worms delight to lodge at the bottom, if they are inclined to remain, they are speedily compelled to lengthen their tails proportionably, in order to breathe from the surface. A repetition of this experiment will prove that each of these worms is capable of stretching its tail to the length of five inches; an amazing extent for a creature whose body is not above half an inch; and the tail of which, in its natural state, does not much exceed that length. However, five inches is the utmost exertion of any one of these insects in this action; and when the water in the vessel is rendered deeper, they either quit the bottom, and crawl up the sides to a proper height, or else continue to swim at the depth of five inches.

The organization of so remarkable a part of this animal as its tail, cannot but appear to the curious as an object worthy their attention; and the natural transparency both of that and of the body of

this insect, must greatly facilitate the examination. Indeed, with respect to many of the younger of these worms, and such of them as have not arrived at that state in which they quit the water, the parts are almost as easily distinguishable within the body as if placed within a glass tube. It is no difficult matter, in every state of this worm, to perceive that the tail is composed of two hollow tubes; one of which nicely fits, and is easily retracted within the other, or protracted, as the occasions of the animal may require. The exterior, and consequently the larger tube, seems to be an elongation of the fleshy matter which forms the rings of the body: within this there is a smaller tube, chiefly of a blackish brown colour; and, by means of the variation in hue, they may be distinguished from each other even when shut up. The interior tube may with propriety be called the tube of respiration, as it is capable of being lengthened or shortened for that purpose at pleasure; the exterior one serving only for a case or sheath. Nor is this all: it is easily known that these pipes are in themselves capable of extension; by observing, that while the whole interior tube is lodged within the case, it is of no determinate length, but sometimes long, and at others short.

Numbers of the aquatic fly-worms do not quit the water till they arrive at their perfect state; but this kind, as soon as they have acquired their proper growth, leave that fluid, and crawl abroad on the earth. Their bodies, in this new element, become dirty and greenish; and, when they have found a proper spot which is soft and moist, they there insume themselves; and, after undergoing their necessary transformations, burst out in the shape of flies. Their changes are all accomplished under shells of their own skins, which in a few hours begin to harden, and by degrees become very firm; and they are remarkable for each having four horns, two longer and two shorter, placed in different directions near the head, which serve as the organs of respiration to the inclosed nymph.

There are several species of this genus of flies, no less different in their sizes than in the worms from which they are produced: the largest of these are found in vaults and privies; and in winter vast numbers of them take up their abodes in the hollows of willows, and other trees which grow contiguous to rivers and marshes.

DRONTE. See **DODO**.

DUCK. A very large genus of birds of the order of anseres. The characters are these: the beak is shorter in proportion than that of the goose, strong, flat or depressed, and commonly furnished with a nail at the extremity. The feet are proportionably larger than those of the goose kind, the middle toe being the longest; the legs are shorter, and placed farther backwards; the back is flatter; and the body is more compressed. The nostrils are small and oval; and the tongue is broad, the edges near the base being fringed. There are numerous species of this genus; some inhabiting the fresh water, and others the sea.

DUCK, TAME. Tame Ducks are reared with more facility than perhaps most other domestic animals. The very instincts of the young direct them to their favourite element; and though they are sometimes hatched and conducted by hens, they seem to contemn the admonitions of their leaders; which circumstance evinces that all birds receive their manners rather from nature than education. The falcon does not pursue its prey because it is thus taught

taught by the parent, but from the importunate cravings of its appetite for animal food; the cuckoo follows a very different way of life from that which its nurse is capable of teaching it; and birds of the Duck kind in particular follow their appetites rather than their tutors, and attain their various perfections without the help of any guide. The arts of man, indeed, are the result of accumulated experience; while those of inferior animals are generally self-taught, and unacquired by imitation.

Duck-eggs are usually placed under a hen, because that animal is supposed to hatch them better than the original parent. The Duck generally proves a heedless, inattentive mother; for she frequently leaves her eggs till they become corrupted, and even seems to forget that she is entrusted with the charge: she is equally regardless of her young brood when they are produced; for she only leads them forth to the water, and then seems to think that she has made sufficient provision for them. Whatever advantages might be secured by drawing near the house, or attending in the yard, she declines them all; and will rather suffer those vermin which usually haunt the waters to destroy her brood, than be at the smallest pains in bringing them to a place of shelter and security. But, on the contrary, the hen, who is an indefatigable nurse, broods with unwearied assiduity, and generally brings forth a chicken from every egg which she is entrusted: she does not indeed conduct her young to the water, because that is contrary to her nature; but she always keeps a watchful eye over them when they stand on the brink. Should the rat or the weasel attempt to seize any of them, the hen affords them instant protection; and, leading her supposititious brood to the house when tired with paddling, there nourishes them with all the instinctive ardour of maternal regard.

There are no fewer than ten different varieties of the Tame Duck; and Brisson enumerates upwards of twenty of the wild. The most obvious distinction, however, between wild and Tame Ducks, lies in the colour of their feet; those of the Tame being black, and the wild yellow.

The common species of Tame Ducks derive their origin from the mallard, and may be traced to that fowl by unerring characters. Though the drakes vary in colour, they all retain the curled feathers of the tail, and both sexes the shape of the bill, peculiar to the wild kind. Nature, indeed, seems to sport with the colours of all domestic animals, that mankind may with more facility distinguish and claim their respective property.

The mallard is usually about twenty-three inches in length, thirty-five inches in breadth, and about two pounds and a half in weight. The bill is of a yellowish green colour; and the head and neck are a deep shining green. A circle of white surrounds the lower part of the neck, to about three-fourths of its circumference; the upper part of the breast, and the beginning of the back, are a purplish red; the breast and belly are grey, marked with transverse speckled lines of a dusky hue; and the scapulars are white, elegantly barred with brown. The spot on the wing is a rich purple one; and the tail is composed of twenty-four feathers. The male of this species is distinguished by four middle feathers, which are black and strongly curled upwards; but the female is destitute of them. Their plumage is a pale reddish

brown, spotted with black; and their legs are fawn-coloured.

Tame Ducks are extremely beneficial to mankind; and by no means chargeable, as they subsist on lost corn, worms, snails, and other insects. They lay a great number of eggs annually; and, when sitting, require no manner of attendance, except that of throwing small quantities of barley at times within their reach: and with respect to Ducklings, they may be fattened in the space of three weeks with any kind of pulse or grain, and plenty of water.

The vessels of the Duck, especially about the heart, are constructed in so particular a manner, as to enable it to live a considerable time, in the act of diving under water, without respiration. This peculiarity induced the ingenious Mr. Boyle to consider it as a more proper subject for experiments, by means of the air-pump, than any of the feathered tribe: accordingly, a full-grown Duck having been put into the receiver of that instrument, of which she filled a third part, and the air exhausted, the creature appeared at first to sustain the operation better than a hen, or any such fowl, could possibly have done; but, after the lapse of one minute, she evidenced strong signs of discomposure; and, in less than two more, her head dropped, and she appeared in a dying state till revived by the admission of a certain portion of air. Thus, whatever facility of diving the Duck and other aquatic fowls may possess, it does not appear that they can subsist without the means of respiration any longer than other animals. A young callow Duck was also tried in the same manner, and experienced the like effect, namely, that of being almost suffocated in less than two minutes. But it ought to be remarked, that both of the foregoing birds swelled so prodigiously, on the pumping out of the air, as to appear much larger, especially about their crops, than they were naturally. It not being the seeming intention of Nature that any water-fowl should subsist in an exceedingly rarified air, but only continue occasionally under water; though she has furnished them with faculties capable of performing the latter, she has left them utterly impotent with respect to the former.

One of the most convincing instances of the Duck's being calculated to live in every situation, with respect to some of its varieties, may be drawn from the history of the blind Ducks of the lake Zirchnitzer, in Carniola. It is now well known that this lake communicates with another underground in the mountain Savornick, and is filled or emptied according to the quantity of water contained in the last; the waters of the superior lake running off by vast holes in its bottom. The Ducks, which are there very plentiful, are often carried down with the stream, and forced into the subterraneous lake by the strength of the vortex; in which unnatural situation many of them unquestionably perish, but those which remain alive become blind, and lose all their feathers; and, at the next filling of the lake, both they and vast quantities of fish are thrown up with the water. At this time they are very plump; and, being destitute of sight, and consequently incapable of avoiding danger, they are caught with facility. In the space of fourteen days, they recover their sight and their plumage, and are then of the size of the common wild Duck, and of a black colour, excepting a white spot on each of their foreheads. When opened immediately on their emerging from the subterraneous

subterranean lake, their stomachs are found to contain numbers of small fishes, on which they must necessarily have subsisted during their continuance in that situation.

DUCK, WILD. The difference between Wild Ducks arises principally from their size and the nature of those places from whence they derive their subsistence. The sea Duck, which frequents the salt water, and often amuses itself with diving, has a broad bill pointing upwards, a large toe behind, and a long blunted tail; but the pond Duck has a straight and narrow bill, a small hind toe, and a sharp-pointed tail. Decoy-men give the former the appellation of the foreign Duck; but the latter is supposed to be a native of England.

The several varieties of Wild Ducks imitate our domestic breed in associating together in flocks during the winter, flying in pairs in the summer, rearing their young by the water-side, and conducting them to their food as soon as they are protruded from their shells. They usually build their nests among heath or rushes, at a small distance from the water; and generally lay twelve or more eggs before they begin to sit. But though this is their usual method of procedure, their dangerous situation on the ground sometimes induces them to shift their habitations; and accordingly their inartificial nests are at times seen exalted on the tops of trees: these stations, however, must infallibly be attended with much trouble and difficulty, especially as the bills of Ducks seem but ill adapted for constructing nests with such durable materials as are capable of resisting the inconstancy of the weather. The nests thus elevated are generally composed of long grass mixed with heath and lined with feathers; but, in proportion as the climate becomes colder, they are more artificially constructed, and provided with warmer linings.

In the arctic regions, all birds of this genus are at incredible pains in protecting their eggs from the inclemencies of the weather: the gull and the penguin tribes, indeed, seem to disregard the most intense cold peculiar to those climes; but the Duck forms a hole for herself; shelters the approach to it; lines it with a layer of grass and clay, and another of moss within that; and, lastly, a warm covering of down or feathers.

As these fowls possess the faculties of flying and swimming, they are principally birds of passage, and probably perform their journeys across the ocean as well on the water as in the air. Those which visit this country on the approach of winter are seldom either so fat or well-flavoured as the Ducks which continue with us the whole year; their flesh is often very lean; and it has generally a fishy taste, which disagreeable flavour it probably contracts during the journey; the food of these birds in the Lapland lakes, from whence they descend, being generally of the insect kind.

As soon as they arrive in this island, they fly about in search of proper winter residences; in the choice of which they seem to have two objects in view, namely, plenty of food, and security from interruption. To this end, they prefer lakes in the vicinities of marshes and thickets, where insects are most plentiful: a pool, therefore, which has a marsh on one side, and a wood on the other, is seldom without vast quantities of wild fowl; where a few have once fixed their residence, numbers are induced to settle; and Ducks flying in the air are often allured down from their heights by the loud voice of the mallard from below. Nature seems

to have endowed this bird with very particular faculties for this purpose: the wind-pipe, where it begins to enter the lungs, opens into a kind of bony cavity, from which the sound is reverberated as in a musical instrument, and heard at a great distance: to this call all the stragglers resort; and, in a very short time, a lake which before was altogether destitute of such inhabitants, appears covered with water-fowl that have left their Lapland retreats, in order to associate with the natives of this island.

Wild Ducks generally prefer those parts of a lake which are most inaccessible to the fowler, where they all appear as if huddled together, and extremely busy and clamorous. In what sort of employment they are occupied for whole days together, it is not easy to conjecture; where they sit and cabal thus, it seems impossible for them to find food, being generally the very centre of the lake; and as to courtship, the season of love is not then arrived: all of them, however, appear to be loaded with industry; nor does a single individual among them seem to be one moment at rest.

They frequently move off privately by night, in order to feed in the adjacent meadows and ditches, which they are afraid to approach by day: during these nocturnal adventures, many of them are often captured; for, though naturally timorous, they are easily deceived, and caught by means of springes. The greatest quantities, however, are taken in decoys, which are well known in Lincolnshire, the great magazine of wild fowl in this kingdom, as well as in Somersetshire, and some other counties. These decoys are thus prepared and conducted. A proper spot is pitched on at a distance from any public road, as well as from houses and noise. A decoy is most eligible where there is a large pond surrounded by a wood, and beyond that a marshy and uncultivated country. The place being chosen, the water must, if possible, be surrounded with willows, unless the woods naturally shade it in every direction. On the south and north side of the pond, two, three, or four ditches or channels, should be made, broader towards the water, and gradually narrowing till they terminate in a point: these channels should be covered over with nets, supported by hooped sticks bending from one side to the other, so as to form a vault or arch growing narrower and narrower to the point, where it should be terminated by a tunnel net; along the banks of these netted channels many hedges should be made of reeds slanting to the edges of the gutters, their acute angles being towards the side next the pool; and the whole apparatus should also be concealed from the pool by a marginal hedge of reeds, behind which the operations of the fowler are conducted.

Matters being thus settled, the fowler, who is provided with a number of Ducks termed decoys, which are rendered tame by education, and accustomed to attend their master on being summoned by a whistle, sets them to feed at the mouths of the pipes. No sooner does the evening commence, than the decoy rises, to use the language of fowlers, and the wild fowl feed during the night. Should the evening be still, the noise of their wings during their flight is heard at a considerable distance, and produces no unpleasant sensation. The fowler, whenever a fit opportunity offers, and he sees his decoy covered with fowl, walks about the pond, and observes into what pipe or channel the assembled Ducks may be enticed or driven with the greatest facility: then throwing hempseed,

or

or some similar allurements which will float on the surface, at the entrance of the pipe, and along its extent, he whistles to his Decoy-Ducks, which instantly obeying the summons, approach, in expectation of being fed as usual; whither also they are followed by a whole flock of the wild ones, unsuspecting of their meditated ruin. However, their sense of smelling being extremely acute, they would speedily discover the ambuscade, did not the fowler hold a piece of burning turf to his nose, against which he constantly breathes, and thereby prevents the effluvia of his person from affecting their very exquisite senses. The Wild Ducks, therefore, in pursuing the decoy ones, are conducted by them into the broad mouth of the pipe, without the smallest suspicion of danger, the fowler being still hid behind one of the hedges: nevertheless, when they have proceeded a short way up the pipe, and perceive it to grow narrower, they begin to apprehend danger, and endeavour to return; but in this attempt they are prevented by the fowler, who now makes his appearance at the broad end below. Thus surprized, intimidated, and utterly unable to rise because of the surrounding net, the only remaining way of escape seems to be through the narrow-funnelled net at the bottom; into which they fly, and are instantly taken.

It frequently happens, however, that the wild fowl will not follow the Decoy-Ducks; and, on such occasions, a little dog, regularly bred to the business, is employed in running backwards and forwards between the reed-hedges, in which there are apertures suited both to the vision of the fowler and the passage of the animal. This circumstance attracts the notice of the wild fowl; which, prompted by curiosity, advances towards the dog, who continues playing among the reeds, but still nearer and nearer to the funnel, till he has allured the Ducks too far for recession.

It sometimes also comes to pass, that the dog does not attract the attention of the fowls till a red handkerchief, or some other thing very singular and shewy in itself, is tied round him: nor do the Decoy-Ducks ever enter the funnel-net with the rest, being trained to dive under water as soon as their companions are entrapped.

The general season for catching wild fowl in decoys is from the latter end of October till February; and, by an act of George II. a penalty of five shillings is incurred for every such bird caught at any other period. Decoys, in Lincolnshire, are usually let at a certain annual rent, from five to thirty pounds a year: these principally supply the London markets with wild fowl; and upwards of thirty thousand Ducks, widgeon, and teal, are said to have been sent up, in the course of one season, from ten decoys in the vicinity of Wainfleet.

To the above account of the method of catching wild fowl in England, it may not be unentertaining to subjoin another still more extraordinary one frequently practised in China. Whenever the fowler espies a number of Ducks settled in the water, he puts off two or three gourds from the land, that they may float among them; which being excavated, always swim on the surface. The fowls, at the first, appear to be somewhat shy in approaching them; but as the most terrific objects, when constantly presented to the view, gradually become more and more familiar, so the Ducks at length gather round the gourds, and amuse themselves with whetting their bills against them. The fowler now hollows out one of these gourds sufficiently

large for the admission of his head; and, after making perforations in it proper for breathing and seeing through, he places it on his head. Thus accoutred, he wades slowly into the water, suffering nothing but the gourd to be perceived above the surface; and in that posture he moves imperceptibly towards the Ducks, which appear unsuspecting of the smallest danger. At last, however, getting into the middle of the flock, he seizes one of them by the legs, draws it instantly under the water, and fastens it under his girdle; from whence he proceeds to a second, a third, and so on, till he has loaded himself with as many as he can carry away. When he has thus obtained the desired quantity, without either disturbing the rest of the fowls, or the pool itself, he moves slowly off again; and in this manner sometimes visits the flock thrice in one day.

DUCK, EIDER; the *anas molissima* of Linnaeus. These very profitable Ducks are found in the Hebrides; but more particularly in Norway, Iceland, and Greenland, from whence vast quantities of their soft feathers, known by the name of Eider down, are annually imported into Great Britain; their remarkably light, elastic, and warm qualities, rendering them a highly-esteemed stuffing for coverlets, especially by those whom age or infirmities have too much enfeebled to support the weight of common blankets.

The Eider Duck is double the size of the common one. The bill is black; the feathers of the forehead and cheeks, by advancing far into the base, form two very acute angles; the forehead is of a deep velvet black colour; from the bill to the hind part of the head, runs a broad black bar, passing across the eyes on each side; and on the hind part of the neck, just beneath the extremity of this bar, there is a broad pea-green mark which has the appearance of a stain. The crown of the head, the cheeks, the neck, the back, the scapulars, and the coverts of the wings, are white; the inferior part of the breast, the belly, the tail, and the quill-feathers, are black; and the legs have a greenish cast. The female is of a reddish brown colour barred transversely with black, except on the head and the upper part of the neck, where she is marked with dusky streaks pointing downwards. The primary feathers are black; the last or greater row of coverts of the wings, as well as the lesser row of quill-feathers, are tipped with white; the tail is dusky; and the belly is a deep brown, marked obscurely with black.

The Eider Duck builds her nest among the rocks or plants which cover the sea-shore, where she lays from six to eight eggs. There is nothing very singular in the external materials of her habitation; but the internal lining, on which she deposits her eggs, is the warmest, softest, as well as lightest, that can possibly be conceived: this inner covering is no other than the down produced from the breast of the bird herself in the breeding season, which she plucks off with her bill, and thus furnishes her nest with a more curious texture than the united art of man is capable of producing.

The natives of these gelid regions exert their utmost industry in discovering the nest of this aquatic fowl; and, after suffering her to lay, rob her both of her eggs and materials. Not discouraged by this first disappointment, the Duck builds another habitation, in which she deposits fresh eggs; and this second mansion, together with its valued furniture, is also removed by the inhabitants. She ventures, however, to build a third time; but then

the down with which her nest is lined is supplied from the bosom of the drake: and if this should likewise be plundered, the male and female both relinquish the place for ever.

The down with which the nests of these fowls are lined is separated from the adhering moss and dust by the natives; and though the climate which they inhabit requires extraordinary warm cloathing, their necessities oblige them to exchange this commodity with the indolent and luxurious inhabitants of the south for brandy and tobacco.

DUCK, VELVET; the *anas fusca* of Linnæus. The male of this species is larger than the common Duck. The bill is broad and short, yellow on the sides, and black in the middle; and the hook is red. The head and part of the neck are black tinged with green; behind each ear there is a white spot, and in each wing a white feather. The rest of the plumage is a fine black, and of the soft and delicate appearance of velvet; the legs and feet are red; and the webs are black. The female is entirely of a deep brown colour, the marks behind each ear and on the tail excepted; and the bill is destitute of the protuberance at the base which Linnæus makes the characteristic of the male. This Duck is common to the coasts of Norway; but seldom makes it's appearance in Great Britain except in very severe winters.

DUCK, SCOTER; the *anas nigra* of Linnæus. This species weighs about two pounds and nine ounces; it's length is twenty-two inches; and the expansion of it's wings is thirty-four inches. The middle of the bill is of a fine yellow colour, but the rest of it is black. Both the male and female are destitute of the hook at the extremity; but on the base of the bill of the former there is a large knob, divided by a fissure in the middle. The tail consists of sixteen sharp-pointed feathers, the middlemost of which are the longest. The whole plumage is black, except that of the head and neck, which is glossed over with purple; and the legs are black.

This bird, the *macreuse* of the French, is allowed by the Romish church to be fed on during Lent; but for what particular reason it enjoys this distinguished honour, perhaps all the doctors of the Sorbonne are at a loss to determine. It lives almost constantly at sea, is a great diver, and is taken in nets placed under the water.

DUCK, TUFTED; the *anas fuligula* of Linnæus. This species does not weigh more than two pounds; and it's length is about fifteen inches and a half. The bill is of a blueish grey colour, except the hook, which is black; the head is adorned with a short, thick, pendent crest; the belly and under-coverts of the wings are pure white; but the rest of the plumage is black, varied about the head with purple. The tail, which consists of fourteen feathers, is short; the legs are a blueish grey; and the webs are black. The female has no crest. When young, she is of a deep brown colour; and the sides of her head next the bill are a pale yellow; but, in other respects, she exactly resembles the Duck in maturity.

DUCK, SCAUP; the *anas marila* of Linnæus. This bird is smaller than the common Duck. The bill is broad, flat, and of a greenish blue colour; the head and neck are black glossed with green; the breast is black; the back, the coverts of the wings, and the scapulars, are beautifully marked with numerous narrow transverse black and grey bars; the greater quill-feathers are dusky, the

lesser being white tipped with black. The belly is white; the tail and feathers, both above and below, are black; the thighs are barred with dusky and white strokes; and the legs are dusky. Willughby supposes that these Ducks derive their name from feeding on Scaup, or broken shell-fish. Their colours are so exceedingly various, that, in a large flock, hardly two of them are to be found alike.

DUCK, GOLDEN-EYE; the *anas clangula* of Linnæus. The length of this species is nineteen inches, and the breadth thirty-one; the weight being about two pounds. The bill is black, short, and broad at the base; the head is large, and of a deep black hue glossed with green; and at each angle of the mouth there is a large white spot. The irides are a bright yellow; the superior part of the neck is of the same colour with that of the head; the breast and belly are white; and the scapulars are black and white. The tail, the back, and the coverts on the ridges of the wings, are black; the first fourteen quill-feathers, and the four last, are black; the seven middlemost are white, as well as the coverts immediately above them; and the legs are orange-coloured. The head of the female is a deep brown tinged with red; the neck is grey; the breast and belly are white; the coverts and scapulars are dusky and cinereous; the middle quill-feathers are white; the remainder, together with the tail, are black; and the legs are dusky.

These Ducks, which frequent both salt and fresh waters, are, during the winter season, frequently caught in the Shropshire meres.

DUCK, BURROUGH, or SHIELDRAKE; the *anas tadorna* of Linnæus. The male of this elegant species measures two feet in length; the expansion of the wings is three feet and a half; and the weight is two pounds and a half. The bill is of a bright red colour, swelling at the base into a knob, which appears most conspicuous in the spring; the head and upper part of the neck are a fine blackish green; the lower part of the neck is white; and the breast and superior part of the back are surrounded with a broad band of bright orange bay. The coverts of the wings and the middle of the back are white; the nearest scapulars are black, the others being white; the greater quill-feathers are black, the exterior webs of the next being a vivid green, and those of the three succeeding an orange. The coverts of the tail, as well as the tail itself, are white, except that the two outermost feathers of the latter are tipped with black. The belly is white, and longitudinally divided by a black line; and the legs are of a pale flesh-colour.

These fowls, which frequent the sea-coasts, breed in rabbit-holes, after having dispossessed the inhabitants. When any attempt is made to seize their young, the old Ducks shew great address in diverting the attention of the fowler from his purpose: they skim along the ground as if in a wounded condition, till such time as their brood have got into places of security; after which they return and collect them together. This instinctive cunning furnished Turner with a plausible reason for conjecturing that the Shieldrake is the *chenalopex* or fox-goose of antiquity; and it is certain that the natives of the Orkneys give this species the appellation of the fly-goose, from an attribute of that quadruped.

These fowls, which lay fifteen or sixteen whitish eggs of a rounded shape, associate together in large flocks during the winter season. Their flesh is extremely rank and disagreeable.

Duck,

DUCK, PINTAIL; the *anas acuta* of Linnæus. The neck of this slender bird is long; it's length is twenty-eight inches, it's breadth about three feet two inches, and it's weight a pound and a half. The bill is black in the middle, but blue on the sides; the head is of an iron colour, tinged behind the ears with purple; a white line, bounded with black, extends from the ears a considerable way down the neck; the hind-part of the neck, the back, and the sides, are elegantly marked with white and dusky waved lines; and the fore-part of the neck and the belly are white. The scapulars are striped with black and white; the coverts of the wings are cinereous; the middle quill-feathers are marked on their exterior webs with green, black, and white bars; the outer feathers of the tail are ash-coloured, the two middlemost, being black, and three inches longer than the rest; and the feet are of a leaden hue. The female is of a light brown colour spotted with black.

These Pintail Ducks are found in great abundance in the county of Connaught, in Ireland, during the month of February; and they are highly esteemed for the delicacy of their flesh.

DUCK, LONG-TAILED; the *anas glacialis* of Linnæus. The bill of this species, which is of a moderate size, is short, black at the tip and base, and orange-coloured in the middle. The cheeks are of a pale brown hue; the hind-part of the head, and the neck both before and behind, are white; the sides of the superior part of the neck are marked with large dusky bars pointing downwards; the breast and back are a deep chocolate; and the scapulars are white, long, narrow, and sharp-pointed. The coverts of the wings and the greater quill-feathers are dusky; the lesser are a reddish brown; and the belly is white. The four middle feathers of the tail are black; but two of them, which are nearly four inches longer than the rest, are white; and the legs are dusky.

These Long-Tailed Ducks, which breed in the most northern climates, visit Great Britain only in such winters as are uncommonly severe.

DUCK, POCHARD; the *anas ferina* of Linnæus. The length of this bird is about nineteen inches, it's breadth two feet and a half, and it's weight twenty-eight ounces. The bill is of a deep lead colour; the head and neck are a bright bay; and the breast, and part of the back where it joins the neck, are black. The coverts of the wings, the scapulars, the back, and sides under the wings, are a pale grey elegantly marked with narrow black lines; the quill-feathers are dusky; the belly is cinereous and brown; and the tail, which consists of twelve short feathers, is a deep grey. The legs are of a leaden hue; and the irides are a bright yellow tinged with red. The head of the female is of a pale reddish brown colour; the breast is somewhat deeper; and the belly, together with the coverts of the wings, are a pale cinereous.

These Ducks, which shew an equal partiality to fresh and salt water, are esteemed very delicate food: they are often exposed to sale in the London markets, where they are known by the appellation of the Dun-birds.

DUCK, FERRUGINOUS; the *anas rufa* of Linnæus. This fowl, which is scarcely mentioned by any other naturalist except the above celebrated one, weighs about twenty ounces. The bill is long and depressed, rounded a little at the base, serrated along the edges of each mandible, and furnished with a nail at the end of the superior. The general colour is a pale blue; the head, neck,

and entire upper part of the bird, is an agreeable reddish brown; the throat, breast, and belly, are of the same colour, but somewhat paler; the legs are a pale blue; and the webs of the feet are black.

Bolton informs us, that a bird of this species was killed in Lincolnshire; and Linnæus says, that the Ferruginous Duck is sometimes, though rarely, found in the Swedish rivers.

DUCK, GADWALL, or GRAY; the *anas strepera* of Linnæus. This species is about the size of the widgeon. The bill is flat, and of a black colour; the head, and the upper part of the neck, are a reddish brown spotted with black; the lower part, the breast, the upper part of the back, and the scapulars, are beautifully marked with black and white lines; the belly is a dusky white; and the rump, both above and below, is black. The tail is cinereous edged with white; the coverts on the ridges of the wings are a pale reddish brown, those beneath being a purplish red, and the lowest a deep black. The greater quill-feathers are dusky; the inner webs of three of the lesser quill-feathers are white, forming a very conspicuous spot; and the legs are orange-coloured. The breast of the female is a reddish brown spotted with black, the back being of the same colour; and though she retains the same spots on her wings, they are far more faint than those of the male.

DUCK, GARGANEY; the *anas querquedula* of Linnæus. The length of this species is seventeen inches, and the expansion of the wings twenty-eight. The bill is of a deep lead colour; the crown of the head is dusky, marked with oblong streaks; and from the corner of each eye issues a long white line pointing upwards to the back of the neck. The cheeks, and the upper part of the neck, are a pale purple, marked with minute oblong lines of white pointing downwards; the breast is a light brown impressed with semicircular black bars; the belly is white; the lower part, together with the vent, are varied with specks; and the bars are dusky. The coverts of the wings are grey; the first quill-feathers are cinereous; the exterior webs of those in the middle are green; the scapulars are long, narrow, and elegantly striped with white, ash-colour, and black; the tail is dusky; and the legs are lead-coloured. The female has an obscure white mark over her eyes; but the rest of her plumage is a brownish ash-colour.

DUCK, BROAD-BEAKED; the *anas clypeata*, or *latirostra*, a species of marine Duck known in England by the name of the shoveller. This fowl is somewhat smaller than the common Duck. The beak is remarkably broad, particularly at the end, where it is rounded and hollowed like a shield; and the edges of each mandible are pectinated, or supplied with thin laminæ, which lock into each other when the mouth is closed. The irides are of a bright yellow colour; the head, and the upper part of the neck, are a blackish green; the lower part of the neck, the breast, and the scapulars, are white; and the back is brown. The coverts of the wings are a fine sky blue, those next the quill-feathers being tipped with white; the greater quill-feathers are dusky; and the exterior webs of the middlemost are a glossy green. The tail is short, and variegated with black and white; the belly is of a bay colour; the vent-feathers are black; and the legs and feet are red. The female has the same marks in her wings as the male, though the colours are less vivid; and the rest of her plumage resembles that of the common wild Duck.

DUCK, MORILLON; the *anas glaucion* of Linnæus.

næus. This bird, which appears to be the morillon of Belonius, has a yellowish brown bill, golden-coloured irides, and a dusky, rust-coloured head. Round the upper part of the neck there is a collar of white, and beneath it another of grey. The back and the coverts are dusky, excepting a few white lines; the great coverts are also dusky, with some large white spots; the primaries are black; and the secondaries are white. The breast and belly are white; the tail is dusky; the sides above the thighs are black; and the legs are yellow.

DUCK, GREY-HEADED, OF EDWARDS; the *anas spectabilis* of Linnæus. This species has a red-coloured bill, which extends into the forehead on each side, in the form of a broad, flattish beam. The feathers at the root of the upper mandible are black, and run into the base of the bill with three angles; the eyes are surrounded with black feathers, which terminate in a point backwards; the top, and hind-part of the head, are of a light blueish ash-colour; the sides of the head beneath the eyes are a light green; and a line of black spots runs from the eyes down the sides of the head, and divides the ash-colour from the green. The neck and breast are white; the back is a dark brown, or black, with a purplish gloss; the greater quills of the wings and the tail are a dark brown; the tips of the middle quills form a white bar across the wings; the lesser covert-feathers of the wings are brown, but in the middle of the coverts in each wing, there is a spot of white. The breast gradually loses its whiteness in the belly, which is wholly black; the covert-feathers of the tail, both above and beneath, are a bright shining black; on each side of the tail there is a large round white spot; and the legs and feet are a dirty red. This bird is a native of Hudson's Bay.

DUCK, LITTLE BROWN AND WHITE; the *anas minuta* of Linnæus. This Duck is about the size of the teal, and resembles it pretty much with respect to shape. The bill is black, serrated on the edges, and a little hooked at the point of the upper chap; the feathers round the base, on the upper part, are white; and the bill itself has two angles, which point towards the forehead on each side. A line of dusky white feathers runs between the bill and the eye, and divides the white into spots both above and below the line; a white spot also appears behind each eye; but the remainder of the head, the neck, and the beginning of the breast, are brown. The back, wings, and tail, are a darkish brown, but the covert-feathers of the wings are brightest. The breast, from being brown, gradually becomes white transversely mottled with light brown as far as the thighs; the thighs and lower belly are a lighter and darker brown transversely mixed in broken lines; and the legs and feet are dusky, with a reddish cast before. This fowl, which was first described by Edwards, is also a native of Hudson's Bay.

DUCK, WHISTLING, OF JAMAICA; the *anas arborea* of Linnæus. This species is nearly two feet in length from the tip of the bill to the extremity of the tail. It makes a kind of whistling noise on every occasion; but, what is most extraordinary in birds of this genus, it builds its nest in trees. The bill, which resembles that of the common Duck, is pectinated at the edges, hooked at the point, and of a dusky colour. The sides of the head are brown; but on the top, which is black, the feathers are very long, and point backwards in the shape of a crest. The hinder part of the neck

is dusky; but the under sides of the head, neck, and throat, are white. The neck is variegated with small black spots; and the back and upper sides of the wings are brown. The greater quill-feathers are a dark brown; the coverts of the wings have black spots in their middles; the tail, the rump, and the superior coverts of the tail, are black; the breast is a bright reddish brown, spotted with black; and the belly is white, with an admixture of black on the sides and a short way down the middle. The legs are longer than is usual in fowls of the Duck kind, and entirely bare a little above the knee. The three foremost toes are webbed; and there is likewise a lateral web on the side of the inner toe. The legs and feet are covered with lead-coloured scales; and the back toe is placed so very high as scarcely to touch the ground. This Duck is very common in Jamaica.

DUCK, WHISTLING, RED-BILLED; the *anas autumnalis* of Linnæus. This fowl is somewhat smaller than the common Duck, and the neck and legs are longer in proportion: the bill is also shaped like that of the common Duck, of an agreeable red colour, yellowish about the nostrils, and black at the point; the irides are a dark hazel; and the sides of the head round the eyes, and on the throat, are a light cinereous. The crown and hinder part of the head are blackish; and the neck, breast, and back, are of a brick colour. The greater quills of the wings are black, as well as those of the bastard wings which cover their bottoms; the inner quills which fall on the rump are a dark brick; and the first and second rows of coverts next above the quills are white. Immediately above the white there is a bright orange spot; the small feathers on the ridges and joints of the wings, as well as the whole belly, tail, and thighs, are black; the rump and the coverts on the upper side of the tail are also black; and the legs and feet are of a fleshy hue, with black claws. This species is a native of the West Indies.

DUCK, WHITE-BELLIED, OF JAMAICA. This species is about twenty inches long from the tip of the bill to the extremity of the tail; and the expansion of the wings is about thirty inches. The bill is black, and nearly two inches in length; and the tail is three inches. The feathers on the head are mottled with light and dark brown; and the upper part of the neck, the sides under the wings, and part of the belly, are covered with brown feathers crossed with whitish lines. The back is somewhat more dusky than the rest of the body; the tail and wings are a light brown; but some of the shorter prime-feathers are painted with green, orange, and white. The breast, and part of the belly, are white; and the legs and feet are a greenish brown.

DUCK, BARBARY, OR GUINEA DUCK. This bird is larger than the common Duck, but smaller than the goose; and the male is larger than the female. The bill is short, broad, and crooked at the end; there is a crest, or red tubercle, between the eyes, as large as a cherry, and a skin surrounds them which has the appearance of red leather. The flesh has the flavour both of the goose and the Duck. The colour of these fowls frequently varies; some being white, others black, and some of different hues: they are, however, generally black, variegated with other tints.

DUCK, GREAT BLACK; the *anas perspicillata* of Linnæus. This bird, which is a native of Hudson's Bay, is considerably larger than the common Duck. The bill is horizontally compressed to-
wards

wards the point, indented on the edges, and of a pale orange colour, except in the middle, where it is reddish. In the broad part of the upper mandible next the head, on each side, there is a large square black spot, which projects a little from the bill; a white triangular mark extends from eye to eye on the crown of the head; and on the hinder part of the neck, immediately below the head, there is another longish triangular white spot; excepting which marks, the whole plumage is black, without any reflecting gloss. The insides of the wings, and the under-side of the tail, are less dark than the rest; the legs and toes are a bright red; the three forward toes are webbed together, the inner and hinder ones being furnished with fins; and the webs of the toes and claws are dusky.

DUCK, BLACK-CRESTED. This species weighs about two pounds; it's length is sixteen inches, and it's breadth two feet three inches. The bill is broad, two inches long, and entirely of a blue colour, except the tip, which is black. The nostrils are large, the space surrounding them being quite bare; the irides are of a golden colour; the ears are small; and the top of the head is a blackish purple. A black crest, about an inch and a half long, depends from the head; the neck, and the superior part of the body, are a deep blackish brown; the wings are short and black, except the four first feathers, which are brownish, and the succeeding ten, which are of a snowy whiteness. The tail, which is very short, is composed of fourteen black feathers; the lower part of the breast, as well as the belly, is white; the feet are a dark blue; and the toes, which are long, have dark membranes between them.

DUCK, DUSKY AND SPOTTED; the *anas histronica* of Linnæus. This species is about the size of the common mallard. The bill is dusky, indented on the edges, and somewhat hooked at the extremity of the upper mandible. The sides of the head between the bill and the eyes are white; and a line of the same colour extends over the eyes, gradually changing into a reddish orange-colour, and reaching to the hind part of the head. A white spot occupies the place of each ear; and a line of the same colour passes from the hind part of the head, on each side, down the neck. The crown of the head is black, it's sides behind the eyes being a purplish blue; and the whole neck, both behind and before, is black. Between the bottom of the neck and the breast there is a white circle continued almost round, the feathers bordering on it, both above and beneath, being a deep black; and between this collar and the wings on each side there is a longish plat of white feathers bordered round with black transversely placed. The back, towards the neck, is a dark purplish blue, and in the middle a dark dirty brown. The rump and the covert-feathers of the tail are a deep black with a blue gloss; the greater quills of the wings and the tail-feathers are a dull blackish brown; the exterior webs of the middle quills are a fine shining blueish purple, the coverts immediately above them being of the same colour with white tips; the inner quills next the back, as well as the feathers which spring from the shoulders, are a blueish ash-colour on the borders of their webs, and white in their middles; the lesser coverts of the wings are cinereous, with a white spot in their middles on each wing; the ridges of the wings above the joints is a reddish brown; and the insides of the wings are a dusky brown. The breast, below the

circle, is a blueish ash-colour; the belly and thighs are a dull brown inclining to black; the feathers on the sides are a dull orange; and on each side of the tail, where the upper and under covert-feathers meet, there is a white spot. The legs, feet, and claws, are a blueish black; and the toes are webbed and finned.

This bird was brought from Newfoundland; and is described by the ingenious Edwards with his usual accuracy.

DUCK, LITTLE BLACK AND WHITE; the *anas albeola* of Linnæus. This bird is somewhat smaller than the common Duck. The bill is short, and of a dirty black colour; the head is a deep glossy black, except a large white spot, which begins behind the eyes on each side, and unites on the hind part of the head. The black feathers next the bill possess a fine green lustre, those on the crown and the beginning of the neck being more of a purple hue; the neck, a little below the head, is entirely white; and the lower part of it behind, together with the back, are a dull black. The rump and the covert-feathers of the tail are a dirty white; the middle feathers of the tail, which are by far the longest, are all of a dirty brown or blackish hue on their upper sides, but somewhat fainter beneath. The exterior quills of the wings are black; the middlemost have deep white tips; a few of the inner ones next the back are black; and the first row of covert-feathers is black where they fall on the greater or black quills, and white where they cover the white quills. The lesser coverts are white, with an admixture of black round their ridges; from each shoulder issues a plat of white feathers, falling backwards in points between the back and the wings; the neck, the whole under-side of the tail, and the interior covert-feathers of the wings, are white; the legs and feet are a yellow orange; and the claws are black.

This Duck is a native of Newfoundland, where the seamen call it a Spirit, probably from the amazing celerity with which it dives, and again appears at a considerable distance from the place of it's immersion.

DUCK, STELLATED. This species is distinguished by it's eyes, which are placed higher than usual in an oval black spot; but it's principal characteristic is a large white star on it's back. The head under the eyes is brown; the bill is black near the base; and the rest of the body is dusky.

DUCK, MADAGASCAR. This bird is larger than the tame Duck. The bill is of a yellowish brown colour; the irides are a fine red; the neck and head are a dusky green; and the back is a deep purple mixed with blue. The edges of the feathers are red; the breast is a deep brown, the edges of it's exterior feathers being red; and those on the shoulders are green, except a few whose margins are red. The first row of the covert-feathers is of the same colour, the second being green. The long feathers of the wings are beautified with red edges; and the legs and feet are of an orange hue.

DUCK, HOOK-BILLED; the *anas adunca*, *rostrum incurvato*, of naturalists. This species bears a strong similitude to the common wild Duck; but it differs from it in the conformation of the bill, which is broad at the tip, somewhat longer than that of the common Duck, and bends a little downwards: the head is also smaller, as well as more slender. It generally weighs about two pounds; it measures two feet in length from the tip of the bill to the extremity of the tail; and the

expansion of the wings is three feet. The upper part of the head and neck are of a dark green colour; having two small white speckled lines, one of which runs from the upper part of the bill over the eye towards the back part of the head, and the other from the bill towards the lower part of the eye, around which there is a circle of beautiful white feathers. The breast, belly, and throat, are white, with small transverse reddish brown spots intersecting them. The first six prime-feathers of the wings are white, the rest being a reddish brown; the first row of the covert-feathers is blue tipped with white, and the second brown with white tips; the scapular feathers of the wings, the sides, and the back, are a reddish brown powdered with white specks; the tail is black, with white tips to the feathers, some of which curl upwards as in the common drake; and the legs and feet are a fine orange.

DUCK, MUSCOVY; the *anas moschata* of naturalists. This fowl, which is the largest of all the Duck kind, is termed the Muscovy Duck, not on account of it's being a native of Muscovy, but from it's strong musky odour. The general colour, both of the male and female, is a purplish black variegated with white: the female, however, is sometimes wholly white. It's beak and feet are red; it has red fleshy protuberances about it's bill and eyes; it's voice is so very hoarse as to be scarcely audible except when the bird is incensed; and it's eggs are remarkably round.

DUCK, BAHAMA. This fowl is smaller than the tame Duck. The head, near the upper jaw, is of a triangular shape and gold colour; the inside of the bill and the lower part of the neck are white; the hind part of the head, the breast, and the belly, are a yellowish ash; the wings are brown; but the middle is green surrounded with yellow; and the extremities are black.

DUCK, SUMMER, OF CAROLINA; the *anas spongia* of Linnæus. The bill of this bird is red in the middle, and there is a black spot at the extremity. The irides are yellow, with a purple circle; and on each side of the head there are two long feathers apparently divided into hairs of a blueish green colour with a purplish cast and a narrow white border. The feathers on the head are of a violet hue; from each side of the throat, which is white, run several bow-like streaks; and the breast is red spotted with white. Near the small coverts of the wings there are broad black streaks which run across the back; but the upper parts of the wings display a diversity of colours. The tail is blue and purple; and the feet, which are brown, have a reddish cast on their fore-parts.

DUCK, TREE, OF LOUISIANA. This species is so denominated from it's perching on the boughs of trees. The plumage is so very beautiful and variable, as scarcely to be imitable by the most skilful painter; the head is adorned with a fine tuft of remarkably vivid colours; and the eyes possess a fiery redness. The feathers of this bird compose some of the most valued ornaments of the natives.

DUCK, AMERICAN, OF LOUISIANA. The feathers of this Duck are almost entirely white; and the sides of the head are covered with fleshy excrescences more red than those of the turkey-cock. The flesh of this bird, while young, is excellent and well tasted; but, when old, it possesses a musky flavour.

DUCKER, OR LOON, RED-THROATED. This fowl is about the size of the tame Duck. The bill

is about three inches and a quarter in length, straight, narrow, sharp-pointed, and black; the head and sides of the neck are blueish ash-coloured; and the hind part of the neck is white, streaked with longitudinal black marks. The throat is red; the back, the upper parts of the wings, and the tail, are darkly cinereous; the quill-feathers of the wings are almost black, except some of the middle ones, which are tipped with white; the coverts of the wings have white dashes on each side of their shafts near their tips; the interior covert-feathers of the wings are white; the breast, the belly, and the sides under the wings, are white; the sides of the breast are distinctly spotted with longitudinal black lines; and the coverts beneath the tail are white marked with broad confused dusky spots. The legs and feet are dusky, or blackish; the toes are somewhat reddish, and webbed together, as in the Duck kind; the claws are broad and flat like human nails; and the legs, which are placed near the extremity of the body, are very flat.

This bird is a native of Greenland: but, during very severe seasons, it visits more southern climes; and has sometimes, though rarely, been caught in England.

DUCK'S FOOT. A species of bivalve shell of the family of the escallop. It is sometimes called the coral.

DUN-BIRD. See **DUCK, POCHARD.**

DUN DIVER, or SPARKLING FOWL. This appellation is generally given to the female of the goosander. The head and upper part of the neck are iron-coloured; the throat is white; the feathers on the hind part, which are long, form a pendent crest; the back, the coverts of the wings, and the tail, are deeply cinereous; the greater quill-feathers are black, the lesser being white; and the breast and belly are white tinged with yellow. The wings of both male and female are very short in proportion to the size of their bodies; nevertheless, they fly very swiftly along the surface of the water. See **GOOSANDER.**

DUNG-FISH. This fish is broad and flat, about a span long, and the same in breadth. The body is variegated with dusky spots; the belly is blueish; the foremost rays of the back-fin are spiny, the posterior ones being soft. The Dung-Fish is so termed on account of it's delighting in the vicinities of privies, where it searches for it's food, and is usually taken.

DUNG-HUNTER. This bird, which frequents the arctic regions, is called by Marten the *strutgager*. The bill is blunt at the fore part, thick, and somewhat hooked; the legs are of a moderate length; and the claws, which are three, are united by a black skin or membrane. The tail, which expands itself after the manner of a fan, has one feather that projects farther than the rest, whereby this may be distinguished from all other birds. The eyes, together with the top of the head, are black; and round the neck there is a dark yellowish ring or circle: the wings and the back are brown; and the belly is white. This creature grows to the size of the common mew, and generally builds it's nest in an elevated situation. It pursues a certain bird, named *kutgegehes*, without intermission, till the fugitive voids it's ordure; on which, as well as the fat of whales, the Dung-Hunter feeds. The flesh is rank and disagreeable.

DUNG-WORMS. A species of fly-worms, having short flat bodies, commonly found among cow-dung during the months of September and October.

October. Their metamorphosis into the fly-state is performed within shells composed of their own skins. The fly produced from the worm, which falls under Reaumur's first class of two-winged flies, has a trunk and lips, but no teeth; and its body is composed of six rings. The head, which is extremely round, and nearly of a spherical figure, is very large in proportion to the body; the antennæ are of the lenticular or battledore shape; the reticular eyes are of a deep chestnut-colour; and the three small ones are placed as is usual in insects of the same class. The corselet is a fine gilded green; and the back is composed of such a variety of changeable colours, that no description of them is capable of conveying an adequate idea of their beauty. The under part or belly is a pale yellow; and the legs and balancers are of the same hue, but rather more faint.

DUNLIN. The English name of a bird of the snipe kind, the *tringa alpina* of Linnæus. The back, head, and upper-part of the neck, are ferru-

ginous marked with large black spots; the lower part of the neck is white impressed with broad dusky spots, or with a black crescent pointing towards the thighs; the tail is cinereous, the two middle feathers being the darkest; the legs are black; and the tail is divided to its origin.

The Dunlin, which is rather larger than the lark, is sometimes seen on the sea-coasts of the British isles, but may be reckoned among the rare aves. It lays four eggs of a dirty white colour, blotched with brown round their thickest ends, and marked with a few small spots of the same colour on their smaller extremities; and its flesh is esteemed a peculiar delicacy.

DUNTER-GOOSE. An appellation sometimes given to the eider-duck, the *anas molissima* of Linnæus; a fowl very common in the Hebrides.

DYTISCUS. A term by which some naturalists distinguish a particular species of the water-beetle.

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EAGLE. A species of falcon in the Linnæan system of zoology; being the largest, strongest, as well as swiftest, of all predaceous birds.

Eagles generally fix their retreats in such situations as are most remote from mortals; on whose possessions they rarely commit any depredations, chusing rather to prey on the wild game of the forest than to gratify their appetites at the hazard of their safety.

The Eagle is among birds what the lion is among quadrupeds; and, in many respects, they strongly resemble each other: they both exercise a kind of sovereignty over their fellows of the forest; and, equally magnanimous, disdain all petty plunder, and pursue only such animals as are worthy of conquest. The Eagle scorns to share the spoils of another bird, and accordingly rejects every species of prey which he has not acquired by his own industry and prowess. However craving his appetite may be, he never stoops to feed on carrion; nor, when satiated, does he ever return to the same carcase, but leaves it to other creatures more rapacious and less delicate than himself. Like the lion, also, he is solitary in his disposition; and it is as extraordinary for two pair of Eagles to be found on the same mountain, as for two lions to be observed in the vicinity of each other: they live asunder for the purpose of obtaining a more ample supply of food, and consider the quantity of their game as the surest test of their dominion.

The lion and the Eagle strongly resemble each other in other respects: their eyes are sparkling, and nearly of the same colour; their claws are shaped alike; and their voices are loud and tremendous. Adapted to a state of warfare, they are inimical to all society; and equally fierce, proud, and incapable of being reclaimed.

Infinite art and patience are requisite in taming the Eagle; and, even when taken young, and hum-

bled by long assiduity, it proves but a dangerous domestic, and rarely shews much regard for its feeder. When the falconer introduces this creature into the field for the purposes of fowling, he is never sure of its attachment: innate pride and love of liberty prompt it to regain its native solitudes; and frequently, on being first turned loose, it rises perpendicularly into the clouds, and is seen no more. Sometimes, however, its natural ferocity has been so far subdued, that it has evinced no small degree of love for its master: and on such occasions it proves highly serviceable to him, in amply providing both for his pleasure and support; for, when liberated, it hovers round him in a sportive manner, till the game presents itself; which the Eagle being capable of discerning at an astonishing distance, instantly pursues and overtakes.

The Eagle soars the highest of all the feathered tribe; and hence the ancients have given it the epithet of the Bird of Heaven: of all others also it has the most perspicacious eye; but its sense of smelling is much inferior to that of the vulture. It never pursues but when its prey is in sight; which, whenever it has seized, it places on the ground, previous to carrying it off. Though very powerful when on the wing, the joints of its legs being rather stiff, it finds some difficulty in rising again after a descent: however, if not instantly pursued, it will with facility carry off a goose, or any other bird equally large. It also seizes on hares, lambs, and kids; which last, as well as fawns, it frequently destroys for the sake of drinking their blood, and carrying away some part of their flesh to its retreat. Even infants, when left unattended, have at times fallen victims to this rapacious creature; which circumstance probably gave rise to the fable of Ganymede's having been snatched up to heaven by an Eagle. Sibbald, in his History of Scotland, records an instance of two children that were car-

ried

ried off by Eagles: but providentially they sustained no material injury; for the creatures, when pursued, deposited the babes in their nests, from whence they were recovered.

Thus Eagles prove at all times very formidable neighbours; but more particularly so when nourishing their young; for on such occasions both the male and female exert all their force and industry to supply the wants of their progeny. Smith, in his History of Kerry, informs us, that a certain peasant in that county procured a comfortable subsistence for himself and family, during a summer of famine, by plundering Eaglets of vast quantities of food which the old ones incessantly brought them. In order to protract the attendance of the parent birds beyond the natural time, he clipped the wings of the young; and, by thus retarding their flight, secured the advantage of participating in their spoils: it was, however, fortunate for this peasant, that he was not surprized by the old Eagles in committing these depredations; their resentments at times proving fatal, as will appear by the following account.

Some years ago, a countryman formed an intention of robbing an Eagle's nest, which was situated in a small island in the beautiful lake of Killarney in Ireland. Having stripped off his cloaths, he swam towards the place while the old birds were absent; and, after robbing the nest of the young, was preparing to return with the Eaglets tied together by a string; but, after being immersed in the water as high as his chin, the old Eagles returned to their nest, and missing their brood, darted instantly on the plunderer, who, in spite of all the resistance in his power, fell a sacrifice to their revenge.

In order to the extirpation of these pernicious birds, there is a law in force in the Orkney islands, where they are very numerous, which entitles any person who kills an Eagle to a hen out of every house in the parish where such bird is destroyed.

The Eagle has always been regarded as the king of birds, either on account of his great strength, the terror which he inspires, his natural fierceness, or the rapidity and elevation of his flight. Bochart tells us, that he lives a whole century, gradually increasing in bulk till his death; and, if so, we may the more easily credit Athenæus, who says, that Eagles, having wings twenty cubits long, were exhibited, by way of ornament, at the triumph of Ptolemy. Such is the voracity of this bird, that a large extent of country is scarcely sufficient to furnish him with prey necessary for his support; on which account, as before observed, two pair of Eagles are never to be found in one and the same quarter. Aristotle and Pliny assert, that these animals chase their young, not only out of their nests, but even the country they inhabit, as soon as they are able to fly. As the Eagle subsists solely on the flesh of such creatures as he destroys, so he also quenches his thirst with their blood, never drinking water when in health. The swan, it is said, is the only bird that is capable of opposing this formidable enemy of the winged tribe; all other birds dreading him to an inconceivable degree, as well as trembling at his cry. Nor are the inhabitants of the liquid element exempted from his voracity; he perceives them, even at the very bottom, as he skims over seas and lakes; darts downward on them with the rapidity of an arrow; and, dragging them to the shore, devours them in an instant.

The Eagle's astonishing sharpness of sight gives

him a decided superiority over every other bird; and of this advantage he seems so very sensible, that, in order to preserve it in the species, as soon as the young begin to acquire strength, the parent turns them towards the sun, obliging them to fix their eyes on this dazzling luminary; and, if any one of them is found to be incapable of supporting the heat and force of his rays, it is speedily chased from the nest, as unworthy of protection and assistance: while, on the other hand, such of them as acquit themselves with reputation in this ordeal, are cherished with remarkable affection, fed with the utmost attention, and taught to fly and pursue with astonishing assiduity. The parent bird afterwards bears them on his wings, in such a position as to be in no danger from the aim of the fowler; quits them in the middle of the course, in order to prove their powers; and, if he perceives that they are either unable to support themselves alone, or run the smallest hazard of falling, he darts himself below them with the utmost celerity, and receives them between his pinions.

The reason why the Eagle is thus able steadfastly to look on the sun, and to sustain his most dazzling rays, is because he is furnished with two eye-lids; by one of which his eyes are entirely shut; while with the other, which is thinner, they are as it were veiled when beholding any luminous object, and it's glaring light is thereby rendered much more supportable. This appendage enables the Eagle to rise to a prodigious height; and to this instinct he owes the renewal of his strength and youth; in which the learned, and even the critics themselves, are agreed. Every ten years his feathers become heavy, and of course less proper for flight: he then makes an effort, and approaches nearer the sun than usual; where, after being excessively heated, he plunges immediately into the sea; on which his feathers fall off, and are supplied by new ones, which restore him to his pristine strength.

Ælian, who ascribes to the Eagle a peculiar instinct of gratitude, gravely informs us, that one which Pyrrhus had brought up, and constantly followed him, was so sensible of the death of that illustrious warrior, that he refused either to quit his body, or to receive any nourishment; and that another threw himself into the same funeral pile which consumed the corpse of his master.

The nest of the Eagle is usually built in the most inaccessible cliff of a rock, and frequently shielded from the inclemency of the weather by some jutting crag which overhangs it: at times, however, it is wholly exposed to the winds, as well sideways as from above; for it is generally flat, though constructed with abundant labour. Some naturalists inform us, that one nest serves the Eagle during his whole life; and indeed the great pains taken by the animal in forming it render this conclusion probable. One of these habitations was discovered in the Peak of Derbyshire, which Willughby thus describes. 'It was made of great sticks, one end resting on the edge of a rock, and the other on two birch-trees. On these was placed a layer of rushes, and over them a layer of heath, and on the heath another layer of rushes; and on them lay an Eaglet and an addled egg; and by them a lamb, a hare, and three heath-pouts. The nest was about two yards square, and had no hollow in it. The young Eagle was of the shape of a gohawk, and weighed nearly as much as a goose; it was rough-footed, or feathered down to the foot, and had a white ring about the tail.'

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The largest species of Eagles seldom lay more than two eggs a piece, and the smallest never more than three. The female, it is said, hatches them for thirty days; but, notwithstanding her care and assiduity, she seldom produces a bird from every egg.

The plumage of Eaglets is not so strongly marked as when they become adult: they are at first white; afterwards they incline to yellow; and, lastly, to brown. Age, hunger, long confinement, and disease, render them still whiter and whiter; but it is said that, when they die at last, it is not so much through age as from their beaks turning inwards on their under mandibles, and thereby preventing them from taking their necessary food. Pennant observes, that they are equally remarkable for their longevity and long abstinence from food; that one of these species, at the time of writing his British Zoology, had been nine years in the possession of Mr. Owen Holland of Conway, as well as lived thirty-two years with the gentleman who made him a present of it; but that he was unacquainted with it's age when the latter received it from Ireland. This bird also verifies the former remark; for, through the negligence of servants, it was once suffered to fast for twenty-one days, not having received any sustenance whatever during that period.

Such are the general characteristics and habits of the Eagle; though, in some species, these habits differ, as will appear in the particular descriptions of each.

EAGLE, COMMON. The Common Eagle is of a brown colour; the head and upper part of the neck incline to red; the feathers of the tail are white, except towards their ends, where they are blackish; the four exterior ones on each side are cinereous; and the legs are clothed with a reddish brown plumage.

EAGLE, GOLDEN; the *falco chrysaetos* of Linnaeus. This bird, which is the largest and noblest of the Eagle kind, weighs about twelve pounds; it's length is three feet, and the extent of it's wings seven feet four inches. The bill, which is three inches long, is of a deep blue colour; the eyes are hazel; and both the sight and sense of smelling are very acute. The head and neck are covered with narrow, sharp-pointed, dark brown feathers, edged with tawny; but, in those which are far advanced in years, the plumage of the crown the head is grey. The whole body is a dark brown, the feathers on the back being delightfully shaded with a deeper tinge of the same colour. The wings, when closed, reach to the end of the tail; the quill-feathers are chocolate-coloured, with white shafts; the tail is a deep brown, irregularly barred and spotted with an obscure cinereous, the roots of the feathers being generally white. The legs, which are yellow, short, and very strong, are three inches in circumference, and feathered down to the very feet; and the toes are covered with large scales, and armed with very formidable claws, the middlemost being two inches long.

This species is found in the mountainous parts of Ireland, and generally breeds in the loftiest cliffs. It usually lays three, and sometimes four eggs, though seldom more than two of them become prolific; Providence mercifully denying a large increase to rapacious animals, because noxious to man; but graciously permitting an unlimited multiplication of such as are serviceable to him. The Golden Eagle has also at times been

1. Caernarvonshire; and there are some few in s of it's having bred on Snowdon Hills; fro. ch circumstance some writers have given that the appellation of the Eagle Rocks.

EAGLE, BALD. This species, which inhabits North na, is remarkable for habits peculiar to itself. hat country, Eagles breed throughout the w ar; and, as soon as the young are covered with and a kind of white woolly feathers, the fem. der to a future progeny;

lay other eggs, a. to be hatched by the warmth of the y. continue in the nest; the flight of one room for the next, which is then bu.

The Bald Eagle flies very heavily, and is incapable of overtaking it's prey like the rest of the tribe: it therefore generally attends on the fowlers during winter; and, when any birds are wounded by them, it immediately seizes them. It also frequently steals young pigs, and carries them alive to it's nest, a very filthy one, composed of twigs, sticks, and rubbish, and generally stored with half-eaten bones and putrid flesh. The body of this ravenous bird is brown; the head, neck, and tail, are white; and the upper-parts of the legs are brown.

EAGLE, RING-TAILED; the *falco fulvus* of Linnaeus. This species, which seems to be peculiar to the northern parts of Europe and to America, is of the size of the common Eagle; the bill is of a blueish horn-colour; the upper mandible, which is arched, hangs over the lower one about an inch, having an angle or tooth on each side; and the lower mandible is shorter than the upper, and inclosed in it. The irides are hazel-coloured; and the pupil is black. Between the bill and the eyes there are spaces of bare skin of a dirty hue, thinly set with small black hairs; the head and neck are invested with narrow brown feathers ending in sharp points; and the whole body is covered with dusky brown feathers, darker on the back, and lighter on the under-side. The breast is marked with white triangular spots in the middle of each feather; the covert-feathers of the wings are of the same colour as those of the body; the quills or flag-feathers of the wings are black; and a few of the quills in the first row of coverts next the back are variegated with transverse lines of a darker and lighter colour. The tail, which is of an equal length with the wings when closed, is white, except the tips of the feathers, which are black, or dark brown; and the coverts under the tail are a reddish brown or bay. The thighs are invested with dark brown feathers of a very loose texture, through which a white down appears in some places; and the legs are covered, quite down to the feet, with a soft reddish brown plumage. There are four toes on each foot, very thick and strong, and covered with yellowish scales; and the claws or talons, which are black, and very powerful, bend almost into semicircular figures, and terminate in very sharp points.

EAGLE, BLACK. This bird, which strongly resembles the ring-tail Eagle in almost every respect, is very frequent in Scotland, where it is called the Black Eagle from the colour of it's plumage. It seizes the deer between it's horns; and, by incessantly beating the eyes of that animal with it's wings, soon makes a conquest of it: and, in the isle of Rum, the Eagles have almost extirpated the breed of stags which used to abound there. This species generally builds their nests in cliffs of rocks near the deer-forests; and make great havock, not

only among the fawns, but also the white hares and ptarmigans.

The Black Eagle is nearly of the size of the golden one; the bill is of a blackish horn-colour; the cere is yellow; and the whole body is a deep brown slightly tinged with rust-colour. The legs are feathered down to the very feet; the toes are yellow; and the claws are black. But the most remarkable peculiarity of this bird is a white band on the upper part of the tail; which mark it retains in every stage of life, as well as in every country where it is found.

EAGLE, SEA; the *falco ossifragus* of Linnæus. Sea Eagles are found in several parts of Great Britain and Ireland. Willughby informs us, that there was formerly an aerie of them in Whinfield Park, Westmoreland; and Turner asserts, that in his time they were well known in England, on account of their making prodigious havock among all sorts of fish; and that fishermen generally anointed their baits with the fat of these birds, from a conceit that it possessed a peculiar alluring quality: nay, so very superstitious were they, that whenever the Sea Eagle hovered over a piece of water, they believed that the finny inhabitants, as if charmed, would rise to the surface with their bellies upwards.

Though the Sea Eagle is no uncommon species, it seems at present to be but little known; for, ever since the time of Clusius, it has not been described by any naturalist except the accurate Pennant; and has generally been confounded with the golden Eagle, to which bird indeed it has some resemblance. The colours of the head, neck, and body, are the same with those of the golden Eagle, but much lighter: it is also far superior in size; the bill is larger, more hooked, and arched; and underneath there are some short strong hairs or bristles that form a sort of beard; from which circumstance some writers have supposed it to be the *aquila barbata*, or bearded Eagle, of Pliny. The interior sides, and the tips of the feathers of the tail, are of a deep brown colour; the exterior sides of some of them are of an iron hue, and of others spotted with white. The legs, which are strong, thick, and yellow-coloured, are feathered only a little below the knees; which circumstance makes an invariable distinction between the Sea and the golden Eagle; and this nakedness of the legs is of the utmost convenience to birds whose prey is lodged in the water. The claws are of a deep shining black hue, exceedingly large and strong, and hooked into a perfect semicircle.

All naturalists seem to coincide in opinion that the Sea Eagle feeds principally on fish, which it seizes, when swimming near the surface of the water, by darting down on them, but not by diving or swimming, as some authors have asserted; and who for that purpose have in their descriptions given it a webbed foot to swim with, and another divided one to catch its prey. Marten says, that those Eagles which inhabit the Western isles, fasten their talons in the backs of salmon, which often rise to the surface of the water, and sometimes above it, and in that manner carry them off; and that they also prey on aquatic fowl: and Pliny, with his usual precision, gives a very agreeable description of the chase, an amusement frequently enjoyed by the inhabitants in the vicinity of the large lakes formed by the River Shannon.

EAGLE, CINEREOUS. This bird, which is also called the *erne*, is inferior in size to the golden Eagle. The beak, cere, and irides, are of a very

pale yellow colour, the space between them and the eyes being bare and blueish. The head and neck are a pale cinereous; the body and wings are of the same hue clouded with brown; the quill-feathers are very dark; the tail is white; the legs, which are a light yellow, are feathered but a very little way below the knees; and the male is considerably darker than the female. The bill in this species is somewhat straighter than usual in the Eagle kind; which circumstance seems to have induced Linnæus to place it among vultures; but, with all becoming deference to so respectable an authority, it can have no claim to be ranked with that genus, the *erne* being wholly feathered; whereas the characteristic mark of the vulture is, that the head and neck are either quite bare, or only covered with down. The Cinereous Eagle inhabits Scotland and the Orkneys, and feeds on fish and land animals indiscriminately.

EAGLE, CROWNED. This very curious bird is a native of Africa, and was first described by Edwards. It is about one-third smaller than the larger species of European Eagles; but, like them, appears to be bold and intrepid. The bill, and the skin which covers the upper mandible, are of a dusky brown colour; the corners of the mouth, which are cleft pretty deep under the eyes, are yellowish; the circles round the eyes are a reddish orange; the fore-part of the head, the space between the eyes, and the throat, are covered with white feathers variegated with small black spots; the hinder part of the head and neck, the back, and the wings, are of a dark brown or blackish hue, the exterior edges of the feathers being a lighter brown; the quills are darker than the other feathers of the wings; the ridge in the upper parts, and the tips of some of the lesser coverts of the wings, are white; the tail is brown transversely barred with black, its under side appearing of a dark and light ash-colour. The breast is a reddish brown, with large transverse black spots on its sides; the belly, and the covert-feathers under the tail, are white spotted with black; the thighs and legs, down to the very feet, are covered with white feathers beautifully marked with round black spots; the feet and claws are very strong, the former being covered with bright orange-coloured scales, and the latter with black.

This Eagle can at pleasure erect the feathers on the hind-part of its head, so as to form a kind of crest or crown; from which circumstance it derives its name; and, like other birds of the same species, it is remarkable for its voracity and sharpness of sight.

EAGLE, BLACK-BACKED. This bird is of the magnitude of the golden Eagle; the bill is black, and the cere yellow. The head, the hind-part of the neck, the belly, and the coverts of the wings, are ferruginous; and the under-side of the neck, the back, and the quill-feathers, are black. That part of the tail nearest to the root is white, and the rest of it is black. The legs, down to the very feet, are covered with ferruginous feathers; the toes are yellow; and the claws are black.

EAGLE OF PONDICHERRY. This species is wholly of a chestnut-colour, except the one half of the six exterior tail-feathers, which are black.

EAGLE, OROONOKO. This bird has an elegant crest, of a deep brown colour above, and white spotted with black beneath. The upper part of the neck is yellow; and the feathers of the tail are brown with white circles, those of the legs being white spotted with black.

EAGLE,

EAGLE, BRAZILIAN. The Brazilian Eagle is of a deep brown colour, with an admixture of cinereous in the wings; the tail is white; and the legs are naked.

EAGLE, JEAN LE BLANC. This species is of a brownish grey colour above, and white spotted with tawny brown below. The feathers on the outside, and on the extremity of the tail, are brown, those on the inside being white streaked with brown; and the legs are naked.

EAGLE, ROUGH-FOOTED. The Rough-Footed Eagle is of a dirty iron colour above, and of an iron one mixed with black below. The head and neck are cinereous mixed with chestnut; the points of the wings are blackish; the tail is white; and the legs are bare.

EAGLE, WHITE. This Eagle is invariably of a beautiful white colour throughout; and from this circumstance it receives its name.

EAGLE, SEA. A species of cartilaginous flat fish, of the *pastinacha marina* kind. The head is almost like that of the toad; and the eyes are large, round, and prominent. The tail, which is long, slender, and sometimes above two eels in length, is armed with a long sharp weapon, the wound of which being extremely dangerous, is avoided by mariners with the most careful circumspection. The body is larger than that of the fire-flaie; the mouth is full of teeth; and the skin is soft and smooth, the upper part being livid, and the under white.

These fish are generally taken when small, but some have been caught which weighed upwards of three hundred pounds. They may easily be distinguished from other gristly fish by the length of their tails, as well as by their large weapons or spines, which are sometimes single, and sometimes double, but always venomous. They inhabit the Mediterranean seas, and are often brought to the markets of Rome and Naples. Their flesh is soft and moist; but having a rank nauseous smell, it is therefore seldom served up at the tables of the opulent. They receive their name from their thin broad sides, which represent the expanded wings of eagles.

EAR-SHELL. In the Linnæan distribution, a species of the *haliotis*. The characters of the Ear-Shell are these: it consists only of one shell or valve, of a flatted shape, and somewhat resembling the human ear; and at the base there is a very wide mouth or aperture, the largest in any shell except the *patella* or limpet.

Aldrovandus and Rondoletius have given this genus the name of *patella fera*, or wild limpet; but in this distribution they have few imitators, as it confounds the *auris marina* and *patella*, which are absolutely two distinct genera.

This genus sometimes yields small pearls, the rudiments of which are frequently seen in those shells which have not brought them to perfection; and the whole internal side of the shell is of the colour of the most beautiful mother-of-pearl: this also appears externally, when the rough coat is so far corroded by acids, as to leave this pearly substance naked; in which case it makes a very elegant appearance, possessing the splendor of the most beautiful mother-of-pearl both within and without; and in this state it is frequently preserved in the cabinets of the curious.

This shell, both internally and externally, is marked with very high ribs, which run from one side to another; and in every species of these shells

there is a row of holes near one edge, of which six are usually open; and beyond these are the marks of three or four more, which do not entirely perforate the shell: these are formed in the growth of the fish, which, as it enlarges, extends the shell; and, when a new rim is formed, wherein there is an open hole, one of the hinder ones is always closed up by the supercession of fresh shelly matter.

EAR-SHELL, GREAT. This species is five inches in length, and nearly three in breadth; and its shape is an irregular oval, the end where the spiral turn is placed being the largest. The back, or hinder edge, is thick, and so turned as to form a kind of lip; the fore-edge is thin, simple, and even; and the upper surface is brown, rough, and uneven, with a kind of undulated line; the part nearest the head is thickest; and the spiral turn is short and depressed. Along the back-part of the shell, near the thickest edge, there is a row of roundish-shaped holes, seven of which are open; and there are the marks of several others which do not penetrate quite through the shell. The internal surface is of a beautiful pearl hue, apparently variegated with several bright colours when placed in different directions of light; and there are also a kind of watery protuberances having the appearance of pearls. This shell is chiefly found in the East Indies.

EAR-SHELL, LONG. The Long Ear-Shell, which has an undulated head and eight holes, is three inches long, and an inch and a quarter broad, but not more than half an inch high. The head is large; and the spiral turn is very beautiful and fair. The back of the shell forms an even lip, the fore-edge being thin and undulated; the external side is smooth except where it receives a slight undulation from the spiral turn, and is of a greenish colour variegated with a brownish red; the internal side is of a pearly hue finely diversified with a variety of other tints; and on the back-edge there is a long row of holes, eight of which are always open. This species, which is found adhering to the rocks on the Malabar coast, in the East Indies, is much admired.

EAR-SHELL, STREAKED, OR WRINKLED. This species, which has six holes, is three inches and a half in length, and two in diameter near the head. It is externally of a dusky brown colour; and exhibits many slight irregular undulated ridges, which begin near the spiral end, though they almost vanish before they reach it.

EAR-WIG. A genus of insects of the order of *coleoptera*. The tail forms a kind of forceps endued with the faculty of pinching; the exterior wings are very short, but dimidiated; and the antennæ are setaceous. The feet are six in number; and the body is about the thickness of a small worm, and very smooth.

Though not produced quite perfect from the egg, this insect requires but a very small change before it arrives at that state which fits it for flight and generation. Its natural functions are never suspended: from the instant it leaves the egg, it continues to eat, move, leap, and pursue its prey; and a skin which inclosed a part of its body and limbs bursts behind, and gives full play to a set of wings with which the animal flies in pursuit of its mate.

The swiftness of the Ear-Wig, in its reptile state, is not less remarkable than its indefatigable velocity when on the wing. That it must be very prolific, appears from the great numbers produced; and

and that it is exceedingly harmless, almost every person's experience can testify. With it's tail, which is forked, it frequently attempts to defend itself against it's assailants; but such efforts are merely the threats of impotence, as they only draw forth the aggravated resentment of more powerful animals without conducing to it's own preservation. The deformed figure and slender shape of the Ear-Wig have also subjected it to an imputation, which, though totally founded in prejudice, often operates to it's destruction: it is supposed frequently to enter the ears of persons when asleep, and to cause intolerable pain; the consequence of which is madness, and soon after death itself. Indeed, it's French appellation, importing an Ear-piercer, urges the calumny against this harmless insect in very pointed terms: but nothing can be more unjust; for the ear contains a thick tenacious substance capable of entangling any insect that might attempt to enter it; besides, being well lined and defended with membranes, none of these animalcules could gain admission if the ear-wax was removed. Such a supposition, therefore, must be vague, and even groundless. The charges which gardeners bring against these insects are not, however, so destitute of foundation; for there is nothing more certain, than that they live among flowers, and destroy them; and when fruit also has been wounded by flies, the Ear-Wigs generally come in for a second feast, and extract those juices which before were only broached. Still, however, these creatures are less noxious in that respect than is generally believed; and they are but rarely the first promoters of any mischief.

As there are various species of these animals, so they fix on different breeding-places; but, in general, they deposit their eggs under the bark of plants, or of trees which have begun to decay. They proceed from the eggs in that reptile state in which they are most commonly seen; and, as they grow larger, their wings, bound under the skin, begin to protrude. The sheaths in which their wings are enveloped cover them so neatly, that the animals seem totally destitute of wings; and, even when they have burst from their confinement, by means of the muscles and joints in the middle of the wings, they fold together in a very narrow compass.

Whenever the Ear-Wig becomes an inhabitant of the sky, it flies in pursuit of the female, ceases to feed, and is wholly employed in the business of generation. It exists in it's winged state but a very short time; and, after having provided for a continuance of posterity, it begins to waste, and dies in a few days of an universal consumption.

The dried powder of Ear-Wigs is esteemed salutary in cases of deafness, and the oil prepared from them in spasms and convulsions.

EAR-WIG, SEA. See FORFICULA MARINA.

EARTH-PIKE. A species of West Indian lizard, called schink by some authors, from a supposition that it resembles the Egyptian animal of that name. It obtains the appellation of the Earth-Pike from it's fancied similitude to the River-Pike when the legs are amputated. This animal is very fleshy; the tail is more thick than is usual in the lizard genus; but the legs are so very short, that it is barely able to creep along the ground. The skin is covered with a vast number of small scales like those of serpents, of a yellow silvery colour shining as if rubbed with oil. The flesh of this creature, if eaten in moderation, is pretended

to be an antidote against poisons, and wounds inflicted by envenomed arrows.

Another species of the Earth-Pike is frequently found in wet and marshy situations. This very deformed creature is about seven inches in length; the back is covered with black and grey spots; the lower part of the belly, which is scaly, shines as if anointed with oil; the colour of the skin is a palish yellow; the head is little, and acuminate; the mouth is pretty wide, and armed with sharp teeth; and the eyes, which are very small, are incapable of supporting the glare of day-light. As soon as this animal is forced from under ground, it immediately endeavours to regain it's subterraneous abode, by digging the earth, like the mole, with it's hard hooked claws. It is extremely injurious to gardens and orchards, where it gnaws the roots of trees and plants. It's bite is also accounted venomous, and is perhaps not less so than that of the most poisonous serpent.

EARTH PUCERONS. An appellation given by naturalists to a species of Puceron which makes choice of a very singular habitation. If, during the month of March, the turf of any dry pasture be raised in several places, there will be found under various parts of it clusters of ants; and, on a more minute investigation, it will usually appear that these emmets are collected round some Pucerons of a peculiar species, which are large, of a greyish colour, and generally found in the middle of a cluster of pismires.

The common abodes of the several other species of Pucerons are in the young branches or leaves of trees; and, as the sap or juice of vegetables constitutes their only food, probably these earthy kinds extract the moisture from the roots of grass and other plants, in the same manner as others do from their different parts. The same ants which conduct us to these Pucerons also direct us where to find the greater part of the other species; for this reason, namely, that as these creatures feed on the saccharine juices of plants, they are evacuated from their bodies in a liquid form, very little altered from their original state; and the ants, which are fond of such food, find it ready prepared for them in the excrements which these little animals are continually voiding.

EARTH-WORM. A well-known insect belonging to the genus of intestines; which, being entirely destitute of feet, trails itself along the ground, till it finds a retreat either under the surface of the earth or in the water. A spiral muscle runs round it's whole body, from the head to the tail, somewhat resembling wire wrapped round a walking-stick, which, when slipped off, and one end extended and held fast, will bring the other nearer to it; and in this manner the animal having extended it's body, lays hold of the slime of the fore-part of it's frame, and so contracts and brings forward the hinder part; in that position moving on, though not without great efforts: but the occasions for it's progressive motions being but few, it's struggles are not often reiterated.

Destined by nature to a subterraneous abode and a life of obscurity, all the powers of the Earth-Worm seem adapted to it's situation. It's body is armed with small, stiff, sharp prickles, which it can either erect or depress at pleasure; and under the skin there is a kind of slimy juice, which the creature ejects, as occasion requires, at certain perforations between the rings of the muscles, in order to lubricate it's body, and thereby facilitate it's

it's body, and thereby facilitate it's passage into the earth. Like the generality of insects, it is furnished with breathing-holes along the back, adjoining to each ring; but it has neither bones, eyes, nor ears: however, it has a mouth, as well as an alimentary canal, which extends to the very extremity of the tail; but in some worms, particularly such as are found in the bodies of animals, this canal opens towards the middle of the belly, at a considerable distance from the tail. The intestines of these worms are always filled with a very fine earth, which appears to be the only nourishment they are capable of receiving.

The Earth-Worm is entirely destitute of brains; but the heart, which is situated near the head, is seen to beat with a very distinct motion; and round it are placed the spermatie vessels, which form a number of little globules containing a milky fluid, and having a communication with the belly not far from the head: in these also numbers of eggs are frequently found; which, being laid in the earth, are hatched in twelve or fourteen days through the warmth of their situation.

These worms, like snails, unite in themselves both sexes at once, the reptile which impregnates being fecundated in it's turn; and perhaps there are but few persons who have not observed them with their heads placed against each other, and so strongly attached, as to suffer themselves to be very roughly handled rather than be disengaged.

The eggs of the Earth-Worms being laid in the earth, and brought to maturity in about fourteen days, as before observed, the young ones issue forth, very small, but perfect in their formation, and suffer no farther change during the whole period of their existence; but how long their lives are protracted, is not well ascertained, though they certainly extend to two or three seasons. At the commencement of winter, they bury themselves deep in the earth, and appear in some measure to share in the general torpidity of the insect tribe: but in spring they revive with the rest of nature; and a moist or dewy evening generally draws them from their retreats, for the purpose of propagating their kind. They live chiefly in a light rich soil, moistened by dews or accidental showers; but avoid those situations where the water is apt to remain on the surface of the earth, or where the clay is too stiff for their easy progression under ground.

Destitute and helpless as these reptiles may seem to be, they are extremely vigilant in avoiding all such animals as naturally prey on them; and in particular the mole, that feeds entirely on these creatures beneath the surface of the earth, and which, from the dimness of it's sight, seldom ventures into the open air: this enemy they avoid by darting up from the earth the instant they perceive the soil begin to move; and fishermen, who are well acquainted with this instinct, take them in whatever numbers they please, by stamping on the earth where they expect to find them. They are also easily driven from their subterraneous retreats by pouring bitter or acrid water over them, such as that in which green walnuts have been steeped, or a lye made of potashes.

The foregoing are the general outlines of the history of these Worms; and, so far as we have proceeded, nothing has been remarked which appears to degrade them beneath the rank of other animals of the insect creation: but we now come to that part of it which proves the imperfection of their organs, from the facility with which these lit-

tle machines may be damaged, and again repaired. It is a well-known axiom in mechanics, that the finest and most complicated instruments are the soonest deranged, and with the greatest difficulty adjusted. The same also holds good in the animal œconomy: man, the most intricate machine of all others, whose nerves are very numerous, and his powers of action exceedingly various, is easily destroyed, frequently by casualties which even birds or quadrupeds readily survive; and, as we descend gradually to the lower ranks, the ruder the composition, the more difficultly is it disarranged. Some animals exist without their limbs, and often reproduce them; and others live destitute of brains for many weeks together: caterpillars continue to increase and extend themselves, though all their noble organs within are entirely destroyed; some creatures, though cut in sunder, still exist, and their nobler parts preserve life, while their amputated ones perish; but Earth-Worms, as well as all the zoophyte tribe, continue to live in separate parts; and one animal, by means of fecundation, is divided into numerous distinct existences.

Throughout the extensive subject of natural history, no phenomenon is more astonishing, than that man should at pleasure enjoy a kind of creative power, so as out of one life to produce two; each compleatly formed, with all it's apparatus and functions; each having it's perceptions, and powers of motion and self-preservation; and each being as compleat in every respect as that from which it derived it's existence, and equally enjoying the humble gratifications of it's nature.

When the ingenious, though enthusiastic, Des Cartes, first broached the doctrine that brutes were machines, the discovery of this surprizing propagation was unknown, otherwise it would in some measure have strengthened his fanciful theory. He would naturally have asked, What is life in brutes? or, Where does it reside? In some, we find it so diffused, that every part seems to maintain a vivacious principle; and the same animal appears to be possessed of a thousand distinct irrational souls at one time. But nothing, in reality, deserves the name of soul, but that which reasons, understands, and is impressed with the image of it's Creator.

Such might probably have been the speculations of this philosopher: but, quitting his theory, suffice it to remark, that we are indebted for the first discovery of this power of reproduction in animals to Mr. Trembley, who observed it in the polypus; and, after him, to Spalanzani, and some other ingenious naturalists, who found it prevail in the Earth-Worm, the Sea-Worm, and several other rudely-constructed animals of a similar kind which were susceptible of this novel mode of propagation. This last gentleman, to whom natural history in general is under the highest obligations, tried several experiments on Earth-Worms, many of which succeeded according to his expectations, though every individual animal did not maintain it's vivacious principle with an equal degree of firmness: some, when cut in two, were entirely destroyed; others survived only in their nobler parts; and, while their heads continued to be animated, their tails perished, and new animals were observed to proceed from their extremities. But, what was most astonishing, in some of these Worms, particularly the small red-headed ones, both extremities survived the operation: the head produced a tail with an anus, the intestines,

the annular muscle, and the prickly beards; the tail-part, on the other hand, begat the nobler organs; and, in less than three months, sent forth a head, a heart, and all the apparatus and instruments of generation. The completion of this last part, as we may reasonably suppose, proved much more tardy than the former, a new head requiring about three or four months in order to perfection; while a fresh tail arrived at it's full maturity in less than as many weeks. Thus two animals, by being dissected, were produced from one, each endowed with it's distinct appetites, with perfect life and motion, and in every respect as compleat as that single one from which each derived it's origin.

The foregoing operation, performed on the Earth-Worm, obtained also with respect to many others of the vermicular tribe; namely, the Sea-Worm, the White-Worm, and many of those small ones with feelers, which are found at the bottoms of dirty ditches; in all of which the nobler organs were of so very little use, that, when removed, the animals did not seem at all sensible of their loss, for they lived in all their parts: and thus, by a strange paradox in nature, the most useless and contemptible lives are, of all others, extinguished with the greatest difficulty.

The Earth-Worm, when full-grown, often measures ten or more inches in length, and upwards of one-third of an inch in diameter; and it's colour is universally known to be a dusky red. But, besides the common Earth-Worm, there is another species found in mud about the sea-shores, which often grows upwards of a foot long, and entirely resembles the former, except that it's colour is a paler red, and that it's skin is covered with little prominences which render it rough and scabrous to the touch.

Earth-Worms are by some accounted very efficacious in medicine, as diuretics, diaphoretics, and anodynes; they are also esteemed discutient, emollient, and deobstruent: and many are of opinion that they may be prescribed with success in apoplexies, spasms, and other nervous affections; as well as in the jaundice, dropsy, and colick.

ECHENEIS. An appellation given by the ancients to some kinds of the petromyza; and Apian in particular evidently intends thereby to express the common lamprey.

ECHINODERMA. A term by which naturalists frequently express the echini marini, or sea-urchin.

ECHINOPHORA. A name given by Rondeletius to a species of sea-snail of the round-mouthed kind, or class of cochleæ lunares; but this author seems to confound the echini with his Echinophoræ.

ECHINUS MARINUS, or SEA-URCHIN. A genus of animals having their bodies covered with a sutured crust, who are often furnished with moveable spines, and whose mouths are quinquevalve and placed beneath.

The Echinus, on a slightish inspection, may be compared to the husk of a chestnut, being at once round, and beset with a great number of bony prickles projecting on every side. The mouth is placed downwards; and the vent is situated above. The shell, which is a hollow vase resembling a scooped apple, is filled with a soft muscular substance, through which the intestines wind from the bottom to the top. The mouth is large, red, and furnished with five sharp teeth, which are

easily discerned; the jaws are strengthened by five small bones, in the centre of which there is a small fleshy tongue, whence the intestines make a convolution of five spires round the internal sides of the shell, and end at the apex, where the excrements are excluded. But, what constitute the most remarkable parts of the conformation of this animal, are it's horns and spines, which point from every part of the body, and serve at once as legs, arms, and instruments of annoyance and defence. Between these horns there are also spines, which are not endowed with such a share of motion. The spines are hard and prickly; and the horns, which are long and soft, and never seen but in the water, are protruded and retracted like those of the snail, being concealed at the bases of the spines when not wanted for the more immediate service of the animal. All this apparatus, however, is only perceivable when the Echinus is busied in hunting it's prey at the bottom of the water; for, in a very few minutes after it is caught, all the horns withdraw into the body, and the greatest part of the spines drop off.

It is generally supposed, that such creatures as have the greatest number of legs always move the slowest: but the Echinus seems to be an exception to this rule; for, though furnished with upwards of two thousand spines and twelve hundred horns, all serving the purposes of legs, and from their number seeming to impede each other's motion, it runs with no small degree of swiftness at the bottom, and is frequently overtaken with difficulty, but generally at ebb-tide, either by means of an osier basket, or simply with the hand.

Some species of Echini are reckoned as excellent food as lobsters; and their eggs, which are of a deep red colour, are considered as a peculiar delicacy: but the flavour of others is very indifferent; and, except in the Mediterranean seas, they are seldom sought for but as objects of curiosity.

ECHINUS, EDIBLE. This species, which is of an hemispherical form, covered with sharp strong spines above half an inch long, commonly of a violet-colour, moveable, and adherent to small tubercles elegantly disposed in rows, is often found in dredging, and frequently lodges in cavities of rocks just within low-water mark.

Echini of this sort at present constitute the food of the poor in many parts of Britain, and also of those of the first quality in some foreign countries. In ancient times they were accounted very delicious, being usually dressed with vinegar, honied wine, parsley, and mint; and, according to Athæneus, were perfectly agreeable to the stomach. They likewise composed the principal dish at the famous supper of Lentulus, when he was made Flamen Martialis, or Priest of Mars; and, from some of the concomitant dishes, they appear to have been intended as a whet to the appetites of the holy personages, priests, and vestals, invited to this banquet, against the second course.

ECHINUS, CORDATED. This animal, agreeably to it's name, is of a cordated shape, gibbous at one end, and marked with a deep sulcus at the other covered with slender spines resembling bristles; and the shell is extremely fragile.

ECHINUS, OVAL. This species, which is oval and depressed, is of a purplish colour on the top marked with a quatre foil, the intermediate spaces being tuberculated in wavy rows; and the lower side is studded, and divided by two smooth spaces. This shell, which measures four inches in length, and,

and, when clothed, is covered with short thick-set bristles mixed with some very long ones, is found near Weymouth. Borlase has given a figure of an Echinus which resembles the above; but neither the print nor description enable us to determine whether it is of the same or a distinct species.

An infinite variety of Echini are found in a fossil state, of which only a few have yet been discovered recent: however, the different genera of these fossil shells are usually known among authors under the names of spatagi, cordati, galeati, pileati, discoides, ovari, and pentaphylloides.

EDOLIO. A bird peculiar to the Cape of Good Hope; so called from it's repeating distinctly the word Edolio. It exactly resembles the cuckoo both in shape and size, and is frequently seen on thick bushes and high trees; but by what name it is known among the native Hottentots, we have not learned.

EEL; the *Muræna Anguilla* of Linnæus. The Eel, from many parts of it's natural history, appears to be a very singular fish, and in some respects to border on the nature of the reptile tribe. During the night it frequently quits the water, it's native element, to wander in meadow-grounds, not only for the sake of changing it's habitation, but also of feeding on such snails as it meets with in it's passage; and in winter it buries itself deep in the mud, where, like the serpent race, it continues in a state of torpidity. So very impatient of cold are these creatures, that, in severe weather, they will eagerly take shelter in a visp of straw flung into a pond; which device has sometimes been practised in order to catch them: and Albertus informs us, that he has known Eels betake themselves, during the brumal season, to a hay-rick, where they perished through excessive cold.

Morton, in his History of Northamptonshire, observes, that there is a species of small Eels, having smaller heads and larger mouths than the common kind, found in clusters at the bottom of the River Nyme, and hence called Bed-Eels: these are frequently roused from their retreats by violent floods, when their stomachs are always found wholly destitute of meat. This circumstance bears such an analogy to the clustering of blind-worms in their quiescent state, that it is undoubtedly a farther proof of a partial agreement in the nature of the two genera.

There is scarcely any animal whose generation has so much puzzled and perplexed the systems of the learned and inquisitive as this. Aristotle first broached an opinion, that Eels were of the common gender, and that they did not propagate their species like other animals, but were equivocally engendered by the mud. Wild and absurd as this hypothesis must appear to every rational mind, it nevertheless met with many abettors in more enlightened ages. Modern enquirers, however, have been so well instructed in the system of animal generation by the works of Swammerdam, Lewenhoeck, Malpighi, Redi, Ray, and numerous other respectable writers on the same subject, that there now remains no doubt that all animals are produced by the contact of parents like themselves: and the phenomenon of Eels being found in new ponds is easily accounted for, if we credit Dr. Plot, who confidently asserts, that whole droves of them will sometimes leave one ditch or pond, and cross the meadows, as well in search of food, as of new retreats. We are well aware, that the Eel retains it's vital principle longer than any other fish, after

being taken out of the water; nor is it difficult to conceive, that it may, without any inconvenience, spend so much time out of that element as is necessary for the passing from one piece of water to another contiguous one: nor, when a number of these creatures have found a new pond, is it at all surprizing that they continue in it, since they feed on worms and other insects, of which it is extremely probable they find abundance in such parts of the earth as have been newly turned up, and where they have not preyed before.

But though the literati are now generally agreed that Eels are produced, like other animals, by parents of their own kind, still there remain many doubts concerning the manner in which this business is effected. Some allow Eels to be like the generality of other animals of distinct sexes in the different individuals; while others affirm that they are all hermaphrodites, each possessing the parts of generation of both sexes. Rondeletius asserts, that they are of different sexes; and Mr. Allen, who has published a very curious paper concerning them in the Philosophical Transactions, is of the same opinion; both affirming that the parts of generation are perceptible on a careful inspection, and some discoverable to be males, and others females: but these members (they tell us) being buried in a vast quantity of fat, are very difficult to be discerned; and consequently Aristotle, who was unable to discover them, concluded that they did not exist at all, which opinion his followers have adopted.

Among those authors who allow Eels to be produced, like other creatures, from animal parents of different sexes, some are of opinion that they are viviparous; others, that they are oviparous. But Mr. Chartwind seems to have conclusively determined this great argument, by observing, that if the aperture under the belly of the Eel, which appears red during the month of May, be cut at that time, the young Eels will be observed to come forth alive after the operation. Lewenhoeck informs us, that he found an uterus in every Eel which he examined, and therefore concludes them to be hermaphrodites: he also conjectures that they have no male parts of generation like those of other animals; but that the office of these is performed by a fluid analagous to the male seed of animals, contained in certain glands situated on the inside of the uterus itself. However, it has been sufficiently proved by modern experiments, that the immediate generation of Eels is effected in the ordinary course of nature, and that the animals themselves are viviparous.

The Eel is extremely voracious in it's appetite, as well as destructive to the fry of fish. The eyes are placed at a small distance from the end of the nose; the irides are tinged with red; the teeth are small, sharp, and numerous; the under-jaw is longer than the upper; beneath each eye there is a minute orifice; and at the extremity of the nose there are two others, small and tubular. The two pectoral fins are rounded at their ends; a narrow fin extends along the back, and unites with that of the tail; the anal fin joins in the same manner beneath; and the orifice of the gills is situated behind the pectoral fin.

Eels vary in their colours, from a sooty hue to a light olive green; and those which are called silver Eels have white bellies, and possess a remarkable brightness throughout.

There is a variety of this Eel known in London and it's vicinity by the name of the grig, and at Oxford

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Oxford by that of the grig or glut. The head is larger, the nose more blunt, and the skin thicker, than in those of the common sort; neither is it so fat, so large, nor so much esteemed, as the common Eel, which sometimes weighs upwards of twenty pounds; and notwithstanding it is the most universal of all fish, it is very rarely found in the Danube, though very common in the lakes and rivers of Upper Austria. It appears that the Romans paid little regard to these fish; but the luxurious Sybarites were so fond of them, that they exempted those who sold them from every kind of tribute.

Those Eels which are caught in rivers, or other clear running waters, are generally preferred. Boerhaave says, that no fish whatever have more acrid galls than Eels; and farther observes that, with an admixture of those of the Eel and the pike made into pills, he hath cured many ricketty children who were afflicted with hard and swelled bellies.

The Eel, though it generally lives in fresh water, sometimes enters the sea, and returns back again to its former abode. It delights in pure running streams; and, if confined to muddy water for any length of time, becomes lean, flaccid, and at last dies. Indeed, it cannot support any considerable difference of living; for, were it to be conveyed, even in the summer season, from a moderately tepid to a more frigid stream, it would soon perish. It feeds on roots, herbs, fish, insects, and whatever else it meets with at the bottoms of rivers: and Athenæus gravely informs us that, in a certain country, he has known Eels so far tamed, as to approach and seize any food presented them with the hand.

Eels generally live to the age of seven or eight years, and afford an excellent aliment: their flesh, which is tender, soft, and nourishing, contains many oily and balsamic parts; but it has also others that are of a dull, viscous, and gross nature, and render it hard of digestion. These fish may be roasted, fried, broiled, or boiled: but those which are roasted appear to be the most wholesome; for this reason, because they are thereby more divested of their viscous phlegm than by the other modes of dressing. Their fat is esteemed excellent in removing marks of the small pox from the face, in curing the piles, and in causing the hair to grow. A kind of mucilage is made of their skins by steeping and boiling them in water, which is frequently applied to swellings, in order to soften and dissolve them; and it is also serviceable in the hernia.

EEL, CONGER. This species, with regard to its general conformation, resembles the common Eel; but differs materially from it in size, some Congers being several yards long, and as thick as a man's thigh: the colour of the back also is lighter than that of the common Eel, being more of an ash; the belly is whiter; the eyes are larger in proportion; the irides are silvery; and on the sides there is a straight, white, broadish line, seemingly composed of a double row of points, which reaches from the head to the tail. The upper edge of the dorsal fin is blackish throughout its whole length; and the end of the upper chap, or snout, is furnished with two short horns, or tubes, which abound with a mucilaginous fluid. Some suppose the flesh of the Conger to be as sweet and salubrious as that of the common Eel; but it is undoubtedly neither so delicious nor so easily digested. See **CONGER-EEL**.

EEL, SAND, OR LAUNCE. This fish, like the

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common Eel, is long and round, but it seldom exceeds a foot in length: it is blue on the back, and of a silver colour on the belly and sides; it has a sharp snout, and a wide mouth destitute of teeth; the lower jaw is longer than the upper; and it has no scales. A long fin extends along the back within a small space of the tail; and there are a pair of fins at the gills, but none on the belly. These fish generally lie half a foot deep in the sand; and, when the tide ebbs, the fishermen on the Cornish coast and the Isle of Man angle for them with hooks constructed for that purpose. Their flesh, which is very sweet and salubrious, proves an excellent bait for other fish.

There is another species of Sand-Eel, which differs from the former in having two fins on its back, whereas that has only one.

EEL, INDIAN. An East Indian fish, the *anguilla Indica* of authors: of which there are two species; the one being entirely spotted with brown, and the other of a fine yellow colour streaked with red. The flesh of both is reckoned unwholesome.

EEL, SEA. A fish commonly found among rocks about the shores of many parts of the East Indies. It is of a dusky brown colour, variegated with rhomboidal spots not very unlike those on the skins of snakes; the anterior part of the body is thin and slender, the hinder part being very thick; the nose is long; the mouth is large, and commonly open; and the teeth are very sharp and small.

Sea-Eels grow excessively fat, and are very wholesome and delicious food; though it is said that those who kill them are affected with tremors, and sometimes with drowns; but which generally go off without any material injury.

EEL, ELECTRIC. See **RAY, ELECTRIC**.

EEL, MICROSCOPIC. The long-bodied animalcules discovered by the help of microscopes in vinegar, sour paste, and many other substances, have, on account of their figure, been distinguished from the rest of the microscopic animalcules by the name of Eels: these, as well as the other kinds, have been supposed by the most judicious naturalists to be produced from the eggs of other animalcules of the fly kind floating in the air; but those in paste are discovered to be viviparous animals, which produce living creatures of their own shape. In order to be always furnished with these minute animals for microscopic observations, such paste as bookbinders commonly use, and of a moderate consistence, should be exposed to the air in an open vessel, and prevented from becoming hard or mouldy by being occasionally stirred. After some days, it will turn sour; when, if attentively examined, multitudes of extremely small, long, and slender animalcules, may be discovered in it, which will daily grow larger, till at length they will be perceptible by the naked eye. In order to promote their growth, a drop of vinegar may be sometimes poured on the paste, by which means they will be preserved throughout the whole year. They may be singly applied to the microscope on a single talc or isinglass, a small drop of water being previously put on it, that the animalcule may swim therein; and then the internal motion of its bowels may be plainly perceived.

On cutting one of these Paste-Eels across the middle, a long and slender tube may be observed to shoot out from each of the divided ends, and a number of seeming ova issue from this; but these, on being more minutely inspected, will appear to be

be living Eels of different growths, all included in their proper membranes: some of them move but slowly; others coil and uncoil themselves pretty briskly; while the most mature are seen to make strenuous efforts towards obtaining an enlargement from their enveloping membranes, and at length succeeding, to swim away like their parent animal. The tube extended each way, on dividing the body, is properly the uterus of the creature, which in the larger Eels is full of dark spots, being the embryo Eels; and these spots are again observable in the young ones as soon as they are produced.

EEL-POUT. The English name of the *muftella fluviatilis*, a fish of the *gadus* kind, in the Arterian system; and distinguished from the others by the name of the bearded *gadus* with two fins on the back and jaws of equal lengths.

The Eel-Pout, which is caught in the Trent, and many other rivers of England, is in some places called the burbot, and esteemed very delicate food. When full-grown, it is commonly about fourteen inches long, slender, and somewhat of the shape of the common eel; but too short, in proportion to it's thickness, to be truly so. Like the eel also, it is very soft and slippery, and covered either with a slimy matter or extremely minute scales. The colour is that of the tench; the head is large and flat; the nostrils are small and round; and the jaws are beset with very small teeth, rough as a file to the touch; besides which, there is a semicircular rugged space in the palate. There are two fins on the back; and there is one on the belly which reaches from the anus to the tail. A small beard rises from the extremity of the lower jaw; there are two other beards between the nostrils and the end of the snout; and the gills are seven in number.

There is another variety of Eel-Pouts, which Linnæus describes as a species of *blennii*; they are viviparous, bringing forth two or three hundred young at a time a little after the depth of winter; and are very numerous in the River Esk, in Yorkshire; but their flesh is not much esteemed. See **BLENNY, VIVIPAROUS.**

EFT. An animal very common in England; called by some the newt, and the swift; and, by others, the common lizard. The Eft has an oval obtuse snout; it's back is of a rusty iron-colour; and it's feet, which have each five toes, are armed with very sharp small claws: that toe which corresponds with the fore-finger in the human race is the longest of all; and that which answers to the thumb is placed lower.

Great Britain affords several species of Efts; namely, the common land Eft, with a black spotted belly; the snake-like Eft, which frequents heaths; the small brown land Eft; the yellow scaly land Eft; and the brown and black spotted water Eft: the two last of which are mentioned by Plot in his History of Staffordshire.

The land Eft, or, as it is frequently called by naturalists, the land salamander, has something very remarkable in it's exterior coat: it's skin often appears dry, like that of the lizard; but it also frequently seems as if covered with a fine shining liquid varnish, the change from one state to the other being usually performed in an instant; and it sometimes, on being barely touched, becomes entirely wet. There is also under the skin of this animal a sort of milky liquor, which, on the body's being pressed, is spouted out to a considerable distance: the passages for the escape of this fluid are a vast number of pores or holes, many of which are per-

ceptible to the naked eye; and probably the first-mentioned liquor, which covers the skin in the manner of a varnish, may be the same with this, it's white colour not being distinguishable when thinly spread over the creature's body. This milky substance bears a strong resemblance to the juice which the tithymals, and many other succulent plants, afford when either cut or broken; it's taste is intolerably acrid and styptic; and though the tongue receives no injury from touching it, the sensation is nevertheless so violent, that the person affected is very apt to dread the consequences.

An opinion generally prevails, that this animal is of a poisonous nature; and the fabulous salamander of the ancients seems to be of the same genus, if not the same animal. Maupertuis, in order to convince mankind of the truth of these remarkable particulars, caused a large number of Efts to be collected; which the country people, who had caught them near the bottoms of old walls, handled with as much caution as if they had been vipers. From this, as well as other experiments, it appears very evident, that the stories of the Eft's being a poisonous animal are as vague and groundless as those of it's being able to exist in the fire. Some remarkable circumstances, however, the above gentleman observed in his dissection of these animals; namely, that in several of the females there were at the same time clusters of eggs and young ones in an animated state; that these eggs formed bunches resembling those of the ovaries of birds; that the young were contained in two tubes, the coats of which were perfectly transparent; and that in one female only he counted fifty-four young, all living and vigorous.

The water Eft furnishes the curious with excellent opportunities of observing the circulation of the blood by means of the solar microscope. By the help of this instrument, the vessels are perceived to be beautifully delineated on the skin; and the tide of blood in the large ones to be equal to that of the stream of water which, in hydrostatical experiments, is ejected out of a vessel by condensed air. In either of these cases, no appearance of drops of separate globules can be discerned, but the whole forms one continuous body. In the lesser vessels, these little globes are observed to pass along very swiftly, but evidently to separate from each other.

It is very remarkable, that in the tail of this animal there seems to be a greater number of vessels than are immediately necessary for the circulation of the blood; for, when thus examined, there will often appear two parallel vessels, in one of which only the circulation is performed, and this successively in one and the other of the vessels, the tide often leaving the one wholly empty which had just before been full and circulating in the other.

In the stomachs of a certain species of water Efts found in Brazil, Mexico, and Cuba, particular substances called Eft-stones, supposed to be endowed with extraordinary virtues, like the bezoars in other animals, are said to be lodged: but though these stones are celebrated by Ximenes, and other authors who have been on the spot, and have had every opportunity of searching into the reality of their origin, many still doubt whether any such substances were ever actually found in these animals. Redi supposes them to have been once the teeth, or some other parts, of fishes dug out of the earth; and he observes that, having tried some which bore that name, he found no visible effect in any of them.

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EGG, POACHED. A curious species of shell of the semiporcellanæ genus, or shells resembling cypræ or cowries.

EGG, SEA. An appellation frequently given to the echinus marinus, or sea-urchin. See ECHINUS MARINUS.

EGRET; the *Ardea Garretta* of Linnæus. This very beautiful bird, to which some naturalists give the name of the lesser white heron, is now but rarely seen in England: though it appears from unquestionable evidence, that Egrets were formerly very numerous; for, in a bill of fare at the famous feast of Archbishop Nevill, mention is made of no less than one thousand of them. Perhaps the great esteem in which they were held at that period, may have occasioned their extirpation in this island; but they are still very common in the southern parts of Europe, where they frequently appear in numerous flocks.

The Egret measures about twenty-four inches in length, and weighs about a pound. The bill is black and slender; the space about the eyes is naked, and green; the irides are of a pale yellow colour; and the head is adorned with a beautiful crest, composed of some short feathers, and two long ones hanging backwards, which are upwards of four inches in length. The whole plumage is of a resplendent whiteness; the feathers on the breast and the scapulars, which are extremely delicate, long, slender, and unwebbed, hang in the lightest and loofest manner imaginable; and the legs are a dark green almost approaching to black. The scapulars and the crest were formerly much esteemed as ornaments for caps and head-pieces: hence the Aigrette and Egret came to signify an Ornament for a Cap; though, according to the etymology of Belonius, the word was originally derived from *Aigre del' Aigreur de sa Voix*.

EINBLINDER. The name of a species of blind lamprey, called by naturalists *lampetra cæca*. It is very small, not exceeding the common dew-worm either in length or thickness. It is also destitute of scales; but the body is divided by annular lines into no fewer than eighty-four-rings. The mouth, which is situated in the under-part of the head, is round, and always open; in the middle of the head there is a cavity, as usual in the lamprey kind, for the admission of water; and on each side there are seven gill-holes. This animal has only one long fin, which runs along the ridge of its back.

ELAPHOCAMELUS. A term by which several authors express the Peruvian camel, usually called the llama, and employed in that country as a beast of burden.

ELAPS. A name sometimes given to the elops, a remarkable kind of serpent found in the Isle of Lemnos. See ELOPS.

ELATER. A genus of insects of the order of coleoptera, having setaceous antennæ; which, when laid on their backs, enable them to leap with great force and agility: and from this circumstance they receive their name. There are various species of these four-winged flies, distinguished by their different colours.

ELATER, MIXED BROWN, GREEN, AND BRASSY. This species is small, and of an oblong shape; the breast and cases of the wings of the male are very bright, strongly tinged with green; and the antennæ are a little pectinated on their edges. The colour of the female is more yellow; the breast is broader and more glossy; and the feelers are

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without any pectination. This insect usually makes its appearance in the month of June.

ELATER, BLACK, RED-BREASTED. This very minute insect is entirely of a black colour, except some part of the breast, which is red, and describes the figure of a crescent, the horns of which are turned towards the head; and also the cases of the wings, which have a blueish cast. It is very common in pasture-grounds, and under hedges, near London.

ELATER, BROWNISH BLACK. This species, which is pretty large, has an oblong body; the colour is a brownish black throughout; the head is small; and the cases of the wings, which are smooth, exhibit somewhat of a glossy appearance.

Linnæus gives this insect the name of the brown notopeda; and likewise makes mention of the Black Elater with a hairy breast; the Black Elater with a red breast, already described; and the Black Elater with red cases to the wings.

Other zoologists enumerate the Greenish Brassy-coloured Elater with yellow wings; the Black Elater with blue cases to the wings; the Black Elater with red wings on the back part; the Black Elater having the cases of the wings livid on their exterior edges; the Red-breasted Elater with red cases to the wings; and the Black Elater with brown cases to the wings, and the feelers and legs of a reddish brown colour.

ELAWANDUM. A remarkable species of monkey very common in the Isle of Ceylon. Its hair is either whitish or of a pale grey colour; and it has a long beautiful black beard depending from its chin.

ELDRIENE. An appellation given by some authors to the small fish called in England the minnow; and by others various, from the assemblage of different colours on its sides and belly.

ELECTRIC EEL. See GYMNOTUS.

ELECTRIC FISH. See TORPEDO.

ELEPHANT. In the Linnæan system of zoology, a distinct genus of the brutæ, in the class of mammalia; the distinguishing characters of which are, that it has no cutting-teeth; that the canine or dog-teeth of the upper jaw are exceedingly long; and that it has a very long flexible proboscis, and a body almost naked.

The Elephant, which is the largest of all land animals, is no less remarkable for its docility and understanding than for its size. All historians are agreed that, next to man, the Elephant is the most sagacious of all creatures; notwithstanding which, were we to form our ideas of its capacity from its external appearance, we should be induced to conceive a very mean opinion of its abilities. Its huge body, covered with a callous hide, without hair; its large misshapen legs, which seem scarcely formed for motion; together with its little eyes, large ears, and long trunk; all unite in giving it an air of extreme stupidity: but when we examine its history, our prejudices banish; and, when we consider the various advantages it derives from its clumsy conformation, our surprize increases.

Though it is altogether impossible, by any description, however elaborate, to convey an adequate idea to the reader of this vast animal, which is said to grow from seven to fifteen feet high; it may in general be observed, that it has a long trunk, composed of multitudes of rings, pliant in every direction, and terminated by a single moveable hook, which answers the purpose of a hand in conveying any substance to its mouth. The forehead is very elevated;

elevated; the ears are long, broad, and pendulous; the eyes are extremely small; the body is round and full; the back rises in a kind of arch; and the legs are thick, clumsy, and shapeless. The hide, which is of a dusky colour, is furnished with only a few scattered hairs, but replete with scratches and scars acquired in its passage through woods and thickets; the tail, like that of the hog, is terminated by a few long hairs of an extraordinary size; the feet are undivided, but the margins are inclosed by five round hoofs; and the whole animal is short in proportion to its height. The female is less than the male; and the udder hangs between the fore-legs.

Though the Elephant is the strongest, as well as the largest, of all quadrupeds, in a state of nature it is neither fierce nor formidable: pacific, mild, and brave, it never abuses its strength, but exerts it either in its own protection or that of the community. In its native deserts, it is seldom perceived alone, but appears to be a sociable and friendly creature. The veteran of the company always conducts the band, that next in seniority bringing up the rear; the weak and the infirm are placed in the centre; while their offspring are borne by the females, and prevented from falling by means of their trunks: however, this order is only maintained either during dangerous marches, or when these animals are desirous of feeding in cultivated grounds. In forests and other solitudes, they move with less precaution, though without ever separating, or even removing so far asunder as to be incapable of lending each other any requisite assistance.

Nothing hardly can be more formidable than a drove of Elephants, as they appear at a distance in an African landscape: wherever they come, the forests seem to sink beneath them; in their passage, they bear down the branches on which they feed; and if they enter an inclosure, in a very few minutes all the labours of agriculture are cut off and disappear: such invasions are the more terrible, as they cannot be repelled; for an army of men would scarcely be adequate to the task of attacking their united numbers. Sometimes, however, it happens that one or two of them are found lingering behind the rest; and against these only the power and stratagems of the hunters can be exerted with effect; for an attempt to molest the whole body would inevitably be fatal, as they rush directly forward on the person who offers to insult them, strike him with their tusks, seize him with their trunks, toss him into the air, and watching his fall, trample him to death. But they are thus dreadful only when incensed, never offering any personal injury when suffered to feed unmolested. It is even said that they retain a sense of injuries received; and accordingly, when once provoked by man, they seek every future occasion of revenge, smelling him with their long trunks at a distance, following him with all their speed on the scent, and (though slow to appearance) soon overtaking and destroying him.

Elephants, in their natural state, seem to delight in frequenting the banks of rivers and the deepest vallies, and in refreshing themselves in the most shady forests and wet situations. Indeed, they cannot exist at a great distance from the water, which they always disturb before drinking. They often fill their trunks with this element, either for the purpose of cooling that organ, or of diverting themselves with spouting it forth in the manner of a fountain. They seem to be equally affected by

the extremes of heat and cold; and, in order to avoid the former, frequently take shelter in the most obscure recesses of forests, or plunge into the water, and swim from the continent to islands at the distance of several leagues from the shore.

These creatures subsist chiefly on vegetables, and seem to entertain a perfect abhorrence for animal food. When any individual of their society happens to discover a spot of good pasture, he invites his companions to partake of the repast; though it must be a very extensive tract indeed that can furnish provision for the whole band; and as their broad heavy feet sink deep at every step, and destroy much more pasturage than they themselves devour, they are on that account frequently compelled to change their quarters, and even to migrate from one country to another. The Indians and negroes, who are often incommoded by these visitants, endeavour to keep them at a distance by making loud noises, and kindling large fires contiguous to their cultivated grounds: but such precautions do not always succeed; for troops of them often break through their fences, destroy their whole harvest, and overturn their little habitations; and, when fully satiated, march back again to the woods in a very regular manner.

Such are the habits of the Elephant, considered in a social light: but, if we regard it as an individual, we shall find its powers still more extraordinary; for, notwithstanding its very awkward and unpromising appearance, it possesses all its senses in great perfection, and is capable of applying them to more useful purposes than any other quadruped. This animal, as already observed, has very small eyes, when compared to the enormous bulk of its body; but, though their minuteness may at first sight carry an appearance of deformity, when we examine them more closely, they exhibit a variety of expression, and discover the various sensations with which the creature is actuated: it turns them with a pleasing attention to its master, seemingly as if to reflect and deliberate; and, as its passions follow each other in slow succession, their various workings are distinctly observed.

Nor is the Elephant less remarkable for its quickness of hearing: its ears, which are extremely large, even more bulky in proportion than those of the ass, are usually dependent, but capable of being elevated and moved at pleasure; and with them the animal wipes its eyes, in order to repel the dust and flies which would otherwise greatly incommode them. It appears to be exceedingly delighted with music; and very readily learns to beat time, to move in measure, and even with its voice to accompany the drum and trumpet. This animal's sense of smelling is not only very exquisite, but is in a great measure adapted to the same odours which are grateful to mankind; for the creature gathers flowers with apparent pleasure and attention, picking them up one by one; and afterwards unites them in a nosegay, seemingly charmed with their perfume. The orange-flower in particular appears to be peculiarly agreeable both to its taste and smell; for it strips the tree of all its verdure, and eats every part of it, even to the very branches: it also searches out the most odoriferous plants which grow in the meadows; and, with respect to the woods, it shews a predilection for the cocoa, the banana, the palm, and the sago trees; the shoots of which being tender, and filled with pith, it not only devours the leaves and fruit, but also the trunk, and the entire plant to its very root.

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But as to the sense of feeling, the Elephant exceeds the whole brute creation, and perhaps even man himself. The organ of this sense lies solely in the trunk, an instrument peculiar to this animal, and which answers all the purposes of a hand: this trunk, properly speaking, is only the snout extended to an unusual length, hollow like a pipe, and terminating in two openings or nostrils like those of the hog. The trunk of an Elephant of the height of fourteen feet, is about eight feet in length, and five and a half in circumference at the mouth, where it is thickest; it is hollow throughout it's whole length, but has a partition which runs from one end to the other; so that, though it appears externally like a single pipe, it is internally divided into two. This fleshy tube is composed of nerves and muscles, covered with a skin of a blackish colour, like that of the rest of the body; it is capable either of extension or contraction, of being bent or straightened; embracing any substance to which it is applied with the utmost pliancy; and yet so very strong, that nothing can be torn from it's gripe. To aid the force of this grasp, there are several little eminences, like the feet of caterpillars, on the under-side of this instrument, which unquestionably contribute to the sensibility of the touch, as well as the firmness of the hold. Through this trunk the animal breathes, drinks, and smells, as by means of a tube; and, at it's very extremity, exactly above the nostrils, there is an extension of the skin, about five inches long, which is shaped like a finger, and in fact answers all the purposes of that member; for, together with the rest of the extremity of the trunk, it is capable of assuming different forms at pleasure, and consequently of being adapted to the minutest objects. By the help of this, the Elephant is enabled to pick up even a pin from the ground, to untie the knots of a rope, unlock a door, and write with a pen. 'I have seen,' says Ælian, 'an Elephant writing Roman characters on a board, in a very orderly manner, his keeper only shewing him the figure of each letter.' While thus employed, the eyes might be observed studiously cast down on the writing, and exhibiting an appearance of great skill and erudition.' It sometimes, indeed, happens, that the object proves too large for the grasp of the trunk; in which case, the Elephant makes use of another expedient as admirable as the former: it applies the extremity of it to the surface of the object; and sucking up it's breath, lifts and sustains whatever weight the air is capable of keeping suspended. Thus this instrument is conducive to almost every purpose of the creature's life; it proves an organ of smelling, touching, and suction; and not only provides for the necessities and conveniences of the animal, but also for it's ornament and defence.

But though the Elephant derives so many advantages from it's trunk, with respect to the rest of it's conformation it is helpless and unwieldy: it's neck is so short, and it's head turned with such difficulty, that the animal must wheel round it's whole body before it can discover an enemy from behind. The hunters, who attack it from that quarter, generally escape the effects of it's indignation by this easy manœuvre, and gain time sufficient to renew their assaults while it is employed in turning it's ponderous carcase in order to face them. It's legs, indeed, are not so inflexible as it's neck, though they are comparatively stiff, and will not bend without evident exertions: those before seem longer than the hinder ones, but only to

appearance, for, on being measured, they are found equal, if not shorter; their joints are placed nearly in the middle, like the knees of the human species; and the great bulk which they are destined by nature to support makes their flexure very clumsy. While young, the Elephant bends it's legs, both to lie down and to rise: but, when it either grows old or infirm, this act is not performed without human assistance; and consequently it becomes so very inconvenient to the animal, that it rather chuses to repose standing. The feet which support these massy columns form a base scarcely broader than the legs they sustain; they are divided into five toes, which are situated beneath the skin, so that none of them appear to the eye, a kind of protuberances only being observable, which vary in number from three to five: but though the apparent toes vary, the internal ones are constantly the same; and the sole of the foot is furnished with a corneous skin, which compleatly invests the whole under-part of the foot.

In addition to the incumbrances of the Elephant, may be subjoined it's two enormous tusks, which being useless for the business of mastication, serve only as weapons of defence: these, as the animal advances in years, become so heavy, that it is sometimes obliged to have holes dug in the walls of it's stall, for the purpose of resting them, as well as easing itself of the fatigue of their support. It is well known to what an amazing size these tusks generally grow, many of them being above six feet in length. Some authors have supposed, that these are rather the horns than the teeth of this animal; but, besides their greater similitude to bone than horn, they have been indisputably proved to grow from the upper jaw, and not from the frontal bones, as some have roundly asserted. It has been also affirmed, that these tusks are shed in the same manner as stags drop their horns; but, from their solid consistence, as well as accidental defects, which often appear to be the result of a slow decay, it is extremely probable that they are as fixed and permanent as the teeth of other animals. Certain, however, it is, that this creature never drops them in a state of servitude, but retains them till they become cumbrous and inconvenient to a very high degree.

As to other parts of it's conformation, this animal is equally singular. The lips and tongues of other creatures serve to imbibe their drink or their food; but, with respect to the Elephant, they are totally unserviceable for those purposes; and it not only gathers it's aliment with it's trunk, but also supplies itself with water by the same means. When it eats hay in a domestic state, it lays hold of a small wisp with it's trunk, turns and shapes it with that instrument for some time, then guides it to it's mouth, and afterwards chews it with it's grinding-teeth, which are exceedingly large. When this quantity is sufficiently masticated, it is swallowed, and never ruminated again, as is the case with cows or sheep, the stomach and intestines of the Elephant bearing a stronger resemblance to those of the horse. It's manner of drinking is equally extraordinary: it dips the end of it's trunk into the water, and thereby sucks up as much at a time as fills that great fleshy tube compleatly; then raising it's head, and turning the point into it's mouth, it drives it below the aperture of the wind-pipe. The trunk being in this position, and still full of water, the creature blows strongly into it at the other end, whereby that fluid is forced into
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the throat, down which it is heard to pour with a loud jingling noise. From this mode of receiving suction, some have been led into an opinion that the young Elephant sucks the dam with it's trunk, and not with it's mouth; but this is a fact which no traveller has hitherto had an opportunity of ascertaining.

The hide of the Elephant is as remarkable as any other part. It is not covered with hair, like the generality of quadrupeds, but is almost bare: a few bristles, indeed, are scattered over the body; but in general the hide is dry, rough, and wrinkled, and resembles more the bark of an old tree than the skin of an animal. This becomes thicker every year; and, by a gradual addition of substance, it at length contracts that disorder well known by the name of the elephantiasis, or Arabian leprosy; a disease to which man himself is obnoxious. For the prevention of this malady, the Indians rub the Elephant with oil, and frequently bathe it, in order to preserve the pliancy of the skin. Besides the inconveniences incident to this disorder, others arise from the extreme sensibility of those parts which are not wholly callous: on these flies settle in prodigious numbers, and unceasingly torment the animal; to repel which, it exerts every art in it's power, using not only it's tail and trunk in the natural manner, but even laying hold of the branches of trees, in order to beat them off; and, when these expedients fail, it often gathers up the dust with it's trunk, and spreads it over the sensible parts.

Water seems as necessary to this animal as food itself. When in a state of nature, the Elephant seldom quits the banks of rivers, and often immerses itself in the water as high as it's belly. In a state of servitude, the Indians are particularly careful to provide the creature with a proper supply of that element; they wash it with great address; afford it every convenience for assisting itself; and, after smoothing it's skin with a pumice-stone, rub in oils, essences, and odours.

Considering the strength, sagacity, and obedience, of this animal, and the various beneficial purposes which it is destined to fulfil, it is by no means surprizing that it should be taken into the service of man: accordingly, we find that this creature, from time immemorial, has been employed either for the purposes of war, labour, or ostentation; to increase the grandeur of oriental monarchs, or to extend their dominions.

Hitherto we have considered the Elephant in it's natural state: but we shall now regard it in a different point of view; namely, as taken from the forest, and reduced to the service of man. We are to behold this brave, but harmless quadruped, learning the arts of mankind, and instructed by him in all the horrors of war, massacre, and devastation; and to observe this half-reasoning animal led into the field of battle, and wondering at those tumults, and that martial fervour, which it is itself taught to increase.

The Elephant is an inhabitant of Africa and Asia only; and, in most parts of the former, it still retains it's native liberty. The savages of that quarter of the world, instead of attempting to subdue this powerful creature to their necessities, are happy in being able to protect themselves from the effects of it's fury. Formerly, indeed, while the Carthaginian empire was in it's splendor, Elephants were employed in war: but this was only a transitory gleam of human power in that division of the globe; the

natives of Africa have long since degenerated, and the Elephant is at present only known among them by it's frequent devastations. However, no Elephants are even now found on this side of Mount Atlas; though beyond the River Senegal, and in the internal parts of the country, they are prodigiously numerous. In these extensive and unpeopled regions, they seem, in conjunction with other wild beasts, to maintain an undisturbed dominion: they appear to be but little apprehensive of man; and, seemingly sensible of his impotence and their own power, they often ravage his little labours, and treat him with the same haughty disdain as they do other animals.

But though Elephants are most numerous in Africa, the largest are found in Asia, where they are also rendered subservient to human controul. In Africa, the tallest do not exceed ten feet; while in Asia they are found from ten to fifteen. Their price increases in proportion to their size; and, when they exceed a certain bulk, their value, like that of jewels, rises as the fancy is inclined to estimate. The largest, which are generally destined for the service of princes, are maintained at a very great expence. Their usual colour, as already observed, is a dusky black, but some are said to be white; and these, being reckoned inestimable, are appropriated to the sole use of the monarch, attended on by the nobles, and almost adored by the people. Tachard assures us, that these white Elephants are larger than others; but some authors maintain that they are less; and, from their undoubted scarcity, others have even been induced to question their existence.

The European arts of destruction in war being little known in Asia, there are but few eastern princes who do not maintain as many Elephants as their finances will admit; and on these animals they place their principal dependence during an engagement. For this purpose they are caught wild in their native forests, and tamed; for they never breed in a state of servitude. It is a striking peculiarity in the Elephant, that it's generative powers totally fail whenever it falls under the dominion of man, as if it were unwilling to propagate a race of slaves to increase the pride of the conqueror. Perhaps there is no other quadruped that refuses to generate in it's own native climate, if indulged with a moderate share of freedom; and it is well known that many will naturally copulate in every climate, and under every circumstance. The Elephant alone has never propagated it's kind; and though it has for ages been subject to mankind, the duration of pregnancy in the female still remains a secret. Aristotle, indeed, asserts that she goes two years with young; that she continues to suckle her offspring for three more; and that she brings forth but one at a time: but this philosopher gives us no account by which we can judge satisfactorily of the authenticity of his information. From authorities equally questionable we learn, that the little Elephant is about the size of the wild boar the instant it is produced; that it's tusks are not then apparent; that at the age of six months it is as large as the ox, when it's tusks are pretty conspicuous; and that it continues in this manner, for near thirty years, advancing to maturity. Such information, however, is not supported by proper evidence: and of this we are fully assured; namely, that in order to recruit the great numbers which are annually destroyed in war, the princes of the east are obliged to ransack the forests, as well as to make use of various other expedients, for the attain-

ment of a fresh supply. Among all those numerous bands, there is not an individual which has not been originally wild, nor one which has not been brought into a state of subjection. Men themselves are often glad to propagate a race of slaves who descend in this wretched state through successive generations; but the Elephant, when under subjection, is invariably sterile: a circumstance which may probably originate from physical causes as yet utterly unknown. In the mean time, the princes of India, having long vainly endeavoured to multiply the breed, have at last contented themselves with separating the males from the females, in order to prevent those accesses of desire which debilitate without multiplying the kind.

In order to catch Elephants wild in the woods, a spot of ground is selected, and surrounded by a strong pallisade constructed with the thickest and strongest trees, and strengthened by transverse bars, which impart a considerable degree of firmness to the whole. The posts are fixed at such convenient distances from each other, that a single person cannot readily pass between them; only one great passage being left open, through which an Elephant may easily enter, and so contrived as to shut of itself whenever the creature has got within the inclosure. In order to allure the animal into this toil, it is previously necessary to discover his retreat in the woods: this being effected, a tame female is conducted near the place, who utters the voice of desire, as instructed by her keeper; which the male instantly answers, and hastens to join her. On this the keeper obliges the female Elephant to retreat, still repeating the same cry, till she has allured the male into the inclosure; the door of which, as before observed, shuts spontaneously the moment he has entered. Still, however, the female advances, iterating her call; while the male pursues her through the inclosure, which gradually becomes narrower, till the unfortunate animal finds himself completely hemmed in, without the power of either advancing or retreating: the female, in the mean time, being liberated through a private door to which she has been accustomed. The male Elephant, perceiving himself thus entrapped, endeavours to effect his escape; and, on the approach of the hunters, all his former desires seem converted into rage: his enemies, however, find means to bind him with cords; and afterwards attempt to soften his indignation, by throwing water on him in great quantities, rubbing his body with leaves, and pouring oil into his ears. Soon afterwards two tame Elephants are introduced; a male and a female; who caress the indignant animal with their trunks, while more water is thrown on him, as well to pacify as refresh him. At last a tame animal, selected from among those whose employment is to instruct fresh captives, is brought forward, and on whom an officer is mounted, for the purpose of inspiring the prisoner with confidence. The hunters then open the inclosure; and, while this creature leads the captive along, two more Elephants are planted on each side, who soon compel him to submit. He is then tied with cords to a massy pillar erected for that purpose, and suffered to remain in that situation one whole day and night. The day following he begins to be somewhat submissive; and, by unwearied assiduity, in the space of a fortnight he becomes as tractable as any of his companions.

The females are generally taken when following the males into these inclosures; and, very shortly after, are employed as decoys to others.

There are various other modes of catching Elephants, differing according to the abilities of the hunters. The negroes of Africa, who hunt them merely for their flesh and tusks, sometimes take them in pit-falls; and, at others, pursue them through the defiles of mountains, where they cannot easily turn themselves; and thus wound them from behind till they sink through loss of blood.

The Elephant, when tamed, is the most gentle and obedient of all animals. It soon discovers an attachment to its keeper, caresses him, obeys him, and seems to anticipate his desires: it even comprehends the different tones of his voice, so as perfectly to distinguish between those of command, anger, and approbation. All its motions are regulated; and its actions, which seem to correspond with its magnitude, are grave and majestic. It is quickly taught to kneel, in order to receive its rider; it fondles those with whom it is acquainted; salutes such as it is ordered to distinguish; and with its trunk, as with a hand, assists in taking up a part of its load: it suffers itself to be arrayed in harness, seemingly exulting in the fineness of its trappings; it draws either chariots, cannon, or shipping, with surprising strength and perseverance, and even with apparent satisfaction, while it is not beat without a cause, and its master seems to applaud its exertions.

The conductor of the Elephant, who is usually mounted on its neck, guides it with an iron rod, sometimes pointed, and at others bent like a hook; with this instrument it is spurred forwards when either slothful or disobedient; but, in general, a single word is sufficient to put the gentle creature in motion after it is once acquainted with its leader: and, indeed, this acquaintance is often absolutely necessary; for the Elephant frequently conceives such an affection for its keeper, that it refuses to obey the commands of any other person; and we are told that many of these animals have even died with grief, after having, in some sudden fit of phrenzy, destroyed their owners. It has also been asserted, that one of them, which had been trained to draw the cannon of the French forces in India, was taught to expect a certain reward from its conductor on the accomplishment of some arduous and dangerous service; but that, being once disappointed in its expectations, the enraged animal slew him: when his wife, who had been a spectator of the horrid scene, probably instigated either by madness or despair, immediately threw her two little sons at the creature's feet; crying out that, since it had killed her husband, it might also kill the infants. The Elephant, observing the babes in that situation, seemed to make a sudden pause; and, moderating its fury, lifted up the eldest of them with its trunk; and, placing him on its neck, thus adopted him for its conductor, and ever after obeyed him with the most scrupulous punctuality.

Nor are Elephants serviceable only in the military art, and in drawing or carrying burdens; they are frequently introduced into the ranks, and compelled to fight in the most dangerous situations. Formerly, indeed, they were much more used in India than at present. About two centuries ago, the chief dependence of generals was placed on the number and experience of these animals; but since the greatest part of mankind have adopted the use of more fatal though less formidable instruments of war, Elephants are very little used. The princes of India still keep a few of them, either through

through ostentation, or for the purposes of removing their seraglios; but they are seldom opposed to fire-arms, as they then frequently turn on their leaders. Still, however, in those remote parts of the east, where war is carried on among the natives only, and where the European arts of destruction have not yet been introduced, as in Siam, Cochin-China, Tonquin, and Pegu, these animals are brought into the field, each armed before with coats of mail, and loaded on the back with a square tower containing from five to seven combatants. On the neck fits the conductor; who, goading the creature into the thickest ranks, prompts it to increase the devastation: wherever it advances, no power can withstand its fury; it levels multitudes by means of its enormous bulk, flings some of the antagonists into the air, and crushes others to death under its feet. In the mean time, those who are situated on the animal's back engage their enemies as from an eminence, discharging their weapons with double force, as the weight increases their velocity.

To men unacquainted with the modern arts of war, nothing can be more formidable or irresistible than such a moving machine: the Elephant, thus armed and conducted, raging in the midst of a field of battle, inspires more dread than even those instruments which destroy at a distance, and are frequently most fatal when unseen. This method of combating, however, is more awful than effectual; and polished nations have ever prevailed over those barbarous troops which have either called in the assistance of the Elephant, or attempted to gain the victory merely by a terrific display. The Romans quickly learned the art of opening their ranks, in order to admit the Elephant; and, thus cutting it off from all assistance, quickly compelled its leaders to calm the animal's fury, and to submit. It sometimes also happened, that the creature became impatient of controul; and, instead of assisting, destroyed its conductors. In either case, there was great preparation to very little effect; for a single Elephant is known to require as much daily sustenance as is sufficient for forty men.

At present, indeed, the Elephant is principally used as a beast of burden throughout the whole peninsula of India; and for this employment no animal in nature can be better adapted. Its strength being equal to its bulk, it is capable of drawing with facility what six horses are unable even to move; it can readily carry on its back three or four thousand weight; on its tusks alone it can support near one thousand; and its force may also be estimated from the velocity of its motion when compared to the magnitude of its body. Its ordinary pace is as quick as that of the horse on an easy trot; and, when pushed, it moves as swiftly as that animal at full gallop. It can accomplish a journey of fifty or sixty miles in one day with great ease; and, when hard pressed, almost double that number. Its trot is usually heard at a great distance; and the creature may be easily traced, its impressions on the ground being very deep, and nearly eighteen inches in diameter.

In India, Elephants are also deputed to very disagreeable offices; for, in the courts of the more barbarous princes, they are used as executioners: which horrid tasks they perform with great dexterity; breaking every bone of a criminal with their trunks, trampling him to death, or impal-

ing him on their enormous tusks, according to the will of the inhuman commanders. But in these offices the Elephant is merely the servant of a cruel master, and not a voluntary tyrant; since no animal of the forest is naturally more benevolent and gentle: equally mindful of benefits, and sensible of neglect, it contracts a friendship for its benefactors, and obeys them even beyond the extent of its natural strength.

As a particular instance of the astonishing power, as well as sensibility, of the Elephant, we are informed that, on the launching of a very large vessel in India, a tame one was directed to force it into the water, when the task proved superior to the animal's strength, in spite of its utmost exertions. The keeper, however, affecting to despise the poor creature's best endeavours, cried out, 'Take away that lazy beast, and bring another better qualified for service!' when the Elephant instantly redoubling its efforts, fractured its skull, and died on the spot.

The following anecdotes, as they are derived from the best authorities, may perhaps serve to elucidate the peculiar qualities and dispositions of this very singular quadruped.

In the city of Delhi, an Elephant passing along the streets, put its trunk into a taylor's shop, where several people were at work. One of the men, either for the sake of amusement, or from motives of brutality, pricked the animal's trunk with his needle, and seemed to entertain himself exceedingly with this pitiful achievement. The Elephant, however, passed on without betraying any signs of immediate resentment; but, coming to a dirty puddle, filled its trunk with part of the contents, returned to the charge, and spurning the foul water all over the finery on which the taylor's were employed, thus amply revenged the insult.

In Adisneer, an Elephant which frequently passed through the public bazar, as it approached a certain herb-woman, had always received from her hands a mouthful of greens. Being one day seized with a periodical fit of madness, the animal instantly broke its fetters; and, running through the market, put the whole crowd of buyers and sellers to flight, among whom was his old benefactress, who had, in her haste, left her little child at the stall: but the animal, suddenly recollecting the spot where she was accustomed to sit, lifted up the infant gently with its trunk, and conveyed it to a place of security.

At the Cape of Good Hope, where it is customary to hunt Elephants for the sake of their teeth; and, where three horsemen well mounted, and armed with lances, usually attack one of these animals alternately, each relieving the other till the creature becomes their prey; three Dutchmen, who were brothers, and who had acquired large fortunes by this occupation, determined to retire to their native country, in order to enjoy the fruits of their labours; but wished, before they put their design in execution, to amuse themselves with a final chace. They accordingly set forwards; and, soon meeting with an object, began the attack in their usual manner: in the interim, one of their horses happening unfortunately to fall, thus dismounted his rider; which the enraged Elephant instantly perceiving, seized the unhappy huntsman, tossed him to a vast height in the air, and received the falling victim on one of its tusks. Then turning towards the other two brothers, with an aspect expressive of revenge and insult,

sult, held out to them the impaled victim, writhing in the agonies of death.

Indeed, the teeth of the Elephant are productive of almost all the enmity which subsists between that animal and the human race; but whether they are shed annually, as in the deer kind, is a matter of uncertainty. However, the natives of Africa, from whom we receive the greatest part of our ivory, assure us that they generally find it in their forests; and that the teeth of an Elephant would by no means prove a sufficient recompence for their trouble and hazard in killing it.

The teeth of these animals are also very frequently met with in a fossil state; and, some years since, two great grinding teeth, and part of the tusk of an Elephant, were discovered in a lead mine, in Flintshire, at the depth of forty-two yards. The tusks of the mammoth, so often found fossil in Siberia, and which are converted to the purposes of ivory, are generally supposed to belong to the Elephant. However, the animal which produces them must have been formerly much larger in that country than it is at present, as those tusks frequently weigh four hundred pounds; while such of them as are imported from Africa seldom exceed two hundred and fifty.

The American Elephants are animals known only in a fossil state. Several enormous skeletons have lately been discovered, at the depth of five or six feet beneath the surface of the earth, on the banks of the Ohio, which are seven hundred miles from the sea-coast. Some of the tusks were near seven feet in length, one foot nine inches in circumference at their bases, and one foot near their extremities; the cavities at their bases being nineteen inches deep. Besides their size, there are other essential differences: the tusks of the true Elephant have sometimes a very slight lateral bend; as well as a larger twist, or spiral curve, towards their smaller ends. But the great and specific difference consists in the shape of the grinding-teeth; which, in those newly found, were fashioned like the grinders of a carnivorous animal, and furnished with a double row of high and conic processes, as if intended for masticating, and not for grinding their food; whereas those of the modern Elephant are flat, and ribbed transversely on their surfaces. A third variation is conspicuous in the thigh-bone, which is of a very disproportionable thickness to that of the Elephant, and has besides some other anatomical variations. These fossil bones have also been found in Peru and the Brazils; and, when cut and polished by ivory-workers, appeared in every respect to correspond. However, Dr. Hunter is of opinion, that they must have belonged to an animal larger even than the Elephant, and differing from it in being carnivorous: but as yet this formidable creature has eluded every search; and if such an animal really exists, it most probably inhabits some of the remote parts of the vast new continent as yet unexplored by Europeans.

It is said that the Elephant, on account of its longevity, represents the symbol of Eternity. On a medal of the Emperor Philip, Eternity is represented by that animal, on which a little Boy is mounted, holding arrows in his hand: and, in the kingdom of Bengal, in the East Indies, the white Elephant is worshipped as a divinity.

ELEPHANT, CATERPILLAR. An appellation given by some authors to a species of insect commonly known in Ireland by the name of

the Connaught worm, and supposed to be fatal to such animals as accidentally eat it.

ELEPHANT, SEA. A name sometimes given to the hippopotamus.

ELEPHANT, TRUNK-FISH, or ELEPHANT'S NOSE. A species of the acus or needle-fish caught in the East Indies; so called from the resemblance of its snout to the trunk of the Elephant. The lower jaw of this very singular creature projects into a long and sharp-pointed spine; the body is round and beautifully variegated with spots; and a green line runs on each side from the head to the tail. The flesh of this creature tastes much like that of the smelt.

ELK. An animal of the cervus or stag kind; which has been so variously described by the ancients, and even by many of the moderns, that it is evident they either knew very little of its nature, or else different writers have described distinct animals under the same name. Pliny tells us, that the Elk resembles the horse, but that it is distinguished from it by the length of its neck and the largeness of its ears; Salinus says, that it is not unlike the mule; and both these authors add, that its upper lip is so very large, that it cannot feed without moving backwards. Pliny, from report, affirms the same of the machlis, a Scandinavian animal. Some have compared the Elk to the goat, and others to the stag; and some represent it as being of a dusky yellowish colour: Cæsar, in his Commentaries, says that it is variegated with spots; and Pausanias informs us, that it resembles the stag kind, but is like the camel with respect to the length of its neck.

In the Linnæan system, the Elk is a species of cervus or deer, with horns having short beams spreading into large and broad palms; one side of which is plain, the exterior one being furnished with several sharp snags. It has no brow antlers; and there is a small excrescence under the throat.

This animal is found in Europe, Asia, and America; and, according to the best informed naturalists, is one and the same with the moose-deer. See **DEER, MOOSE.**

The term Elk is also frequently applied to the cygnus ferus, or wild swan. See **SWAN, WILD.**

ELOPS. An appellation common to the sea-serpent. The body is slender; the head is large; and the fin which covers the gills is double, having thirty spines, and being armed externally with five bones resembling teeth.

ELOPS is also the classical name of a fish much esteemed among the Greeks, and conjectured to be the same with the accipenser.

ELVERS. The name of a small species of eels caught in several rivers of England, particularly the Severn; being, in reality, young conger-eels. They enter the rivers while they are small; and, as they precede the shads, it is by some imagined that they supply them with food. About the month of April, when they quite swarm, they are taken in a kind of sieves constructed with hair-cloth, and affixed to long poles. The fisherman, who stands on the margin of the stream, throws in his net as far as he is able; and, instantly drawing it out again, finds multitudes of Elvers inclosed; and proceeding in this manner, during the continuance of the tide, frequently takes as many as will fill a bushel. They are esteemed very delicate food.

EMBER GOOSE; the Colymbus Ember of Linnæus. A species of diver which inhabits the seas about the Orkneys, but in very severe winters migrates

migrates to the southern parts of Great Britain. It spends so much of its time in the water, that the more credulous are of opinion it never quits that element; and that it hatches its young in a hole formed by nature for that purpose under its wing.

The Ember Goose is superior in size to the common one; the head is dusky; the back, the coverts of the wings, and the tail, are clouded with lighter and darker shades of the same hue; the primaries and the tail are black; the under side of the neck is spotted with dusky; the breast and belly are silvery; and the legs are black. The skin is so tough, that in some of the northern countries it is said to answer all the purposes of leather.

EMBERIZA. An appellation, with the addition of the epithets White and Yellow, used to express the bunting and the yellow-hammer. In the Linnæan system, it constitutes a distinct genus of passeres, including a great number of species.

EMBRYO WORMS. Of these insects, which are lodged in the bodies of viviparous two-winged flies, the arrangement is a matter of no small curiosity. If one of them be accurately dissected, the parts where the Embryo Worms are inclosed will plainly appear. This dissection, which consists in taking off the whole upper shell of the body from the lower, is easily performed with a pair of scissors; and that part which covers the belly may be turned back on the corselet, without disturbing the internal members by the operation; when the form and arrangement of those parts which contain the Embryo Worms in these will be found very different from the shape and order of those which encircle the eggs in common flies.

EMPIS. A name sometimes expressive of a large species of gnat found about rivers and ponds; and distinguished from all other kinds by a white circle surrounding the middle of its body.

EMU. An American bird, called by some authors the Ostrich of the New World. It is but very little known; and those naturalists who mention it seem rather desirous of proving its affinity to the ostrich, than of describing those peculiarities which distinguish it from all others of the feathered creation.

These birds are chiefly found in Guiana, on the banks of the Oroonoko, in the interior provinces of Brazil and Chili, and in the vast forests which border on the River Plata. Several other parts of America were once known to contain them; but as mankind have multiplied, those large and timorous creatures have either fallen victims to their power, or retired from their vicinity.

The Emu, though not so large as the ostrich, is the second bird to it in magnitude, being by far the largest in the new continent. The head generally measures six feet from the ground; the legs are three feet long; and the thighs are nearly as thick as those of a man. It has three toes, whereas the ostrich has but two; the neck is long; the head is small; and the bill is depressed like that of the ostrich; but, in all other respects, it bears a stronger resemblance to the cassowary than to any other fowl. The shape of the body is roundish; the wings are short, and entirely unsuitable for flight; and it has no tail. The back and rump are covered with long feathers, which fall backwards, and cover the anus; and these are grey on the back, and white on the belly. It moves with great velocity, and seems to derive assistance in its progress from a kind of tubercle behind shaped like a heel, by

which it treads very securely. In its course it uses a very singular kind of action; namely, that of lifting up one wing, which it keeps elevated for a time, and afterwards the other. Whether this creature makes use of its wing as a sail in order to catch the wind, or as a rudder to direct its course, remains yet to be ascertained: however that may be, it runs with such amazing swiftness, as generally to leave the fleetest dogs far behind it; and one of them, on finding itself surrounded by the hunters, is said to have darted among the dogs with such astonishing fury, that to avoid its rage they instantly gave way, while the courageous animal escaped in safety to the mountains.

This bird being but very little known, travellers have given scope to their imaginations in describing some of its actions, which they are well aware cannot be easily contradicted. Nieremberg informs us, that it is very peculiar in its mode of incubation: 'The male,' says he, 'compels twenty or thirty of the females to lay their eggs in one nest; he then chases them away, and places himself on the eggs; however, he takes the singular precaution of laying two of the number aside, on which he does not sit. When the young ones come forth, these two eggs are added; which the male having foreseen, breaks one, and then another, on which multitudes of flies are seen to settle; and these supply the young brood with a sufficiency of provision till they are capable of assisting themselves.' On the other hand, Wafer asserts, that he has found great quantities of the eggs of this animal on the desert shores north of the River Plata, buried in the sand in order to be hatched by the heat of the climate. But of this, as well as the preceding account, we are somewhat doubtful; and it is highly probable that the last of these naturalists saw only the eggs of the crocodile, which are unquestionably hatched in that manner.

When the young are first excluded, they appear to be very familiar, as they follow the first person they meet. 'I have been attended myself,' says Wafer, 'by many of these young ostriches, which at first are extremely simple and harmless; but, as they grow older, they become more cunning and distrustful, and run so swiftly that a greyhound cannot overtake them.'

Their flesh is generally esteemed proper for food, especially when young; and, as they are naturally very tame, it would perhaps be no difficult matter to rear them in a domestic state; especially as their maintenance could not be expensive, if, as Narborough says, they live entirely on grass.

ENCHELIDES. A genus of animalcules containing the capillary eels found in peppermint, vinegar, and other fluids.

ENCHELUS. An appellation given by Aristotle, Appian, and all the Greek writers, to the eel.

ENCRASICOLUS, or the Anchovy. A small sea-fish of the harengiform kind, but destitute of the row of serrated scales on the belly. These creatures are caught in prodigious numbers in the Mediterranean and some other seas; and are well known as a pickle in most nations of Europe. See **ANCHOVY.**

ENCRAULOS. An Aristotelian appellation for the anchovy.

ENCURECK. A venomous insect found in Persia, and supposed by some naturalists to be a species of tarantula. It neither stings nor bites, but lets fall its poison like a drop of water, which

occasions an almost intolerable pain for a considerable time; and afterwards superinduces such a profound sleep, that nothing, it is said, can awake the patient but the crushing one of those creatures on the part affected: it is, however, asserted, that sheep feed on these insects without receiving the smallest injury.

EPERLAMUS. A name sometimes given to the smelt on account of its pearly colour.

EPERVIERS. The French appellation for that class of butterflies which constitutes the sixth in Reaumur's distribution. These insects are distinguished by their poisoning themselves on their wings after the manner of kites and other birds of prey, and never settling on those flowers from whence they derive their subsistence, but fluttering with a humming noise while they thrust their trunks into the cups of the flowers, and extract their juices.

EPHEMERA. A distinct genus of the order of neuroptera in the system of Linnæus, distinguished by two gibbous protuberances above the eyes, erect wings, and a bristly tail. This celebrated naturalist enumerates eleven species of this class, discriminated by their different colours, and the number of hairs in their tails, some having two, and others three.

The Ephemera, or Day-fly, as its name imports, though among the most minute of that kind of insects, may be considered as one of the most curious objects in natural history. All the various species are produced from eggs, in the form of worms; from whence they change to their aurelia state; and then adopt their last mutation, viz. into beautiful flies, of longer or shorter duration, according to their kinds.

The Ephemera, in its fly state, is a very elegant winged insect, strongly resembling the butterfly both in its size and shape; but its wings are not covered with that kind of painted dust with which those of butterflies in general are adorned and rendered opake. The Day-fly has four wings, the uppermost being considerably the largest; and, when the creature is at rest, it generally lays its wings over each other on its back. The body is long, and composed of six rings which are larger at their beginnings than near their extremities; and from thence a tail proceeds longer than all the rest of the fly, consisting sometimes of three threads of unequal lengths, and at others of two long and one short. Before this beautiful form is acquired, the insect must have undergone all the various transmutations of its kind: but its glory is exceedingly transient, for the hour of its greatest perfection is that of its death; and it seems scarcely introduced to pleasure when destined to resign its life.

The reptile that is to become a fly, and which is granted so long a term when compared to its latter duration, is an inhabitant of the water, and in many particulars bears a strong resemblance to fishes. It is furnished with gills, by means of which it respires at the bottom; and possesses also the tapering shape of aquatic animals. It has, besides, six scaly legs, which are affixed to their corselet; the head is triangular; the eyes, which are placed forwards, may be distinguished both by their largeness and colour; and the mouth is furnished with teeth.

As there are several species of Ephemera, their aurelia are consequently of different hues, some being yellow, some brown, and others cream-co-

loured. Some of them likewise excavate cells at the bottom of the water, from which they never stir, but feed on the mud which composes the walls of their habitations in contented captivity: others, on the contrary, range about, dive from the surface to the bottom, swim between two waters, quit that element entirely in order to feed on plants by the river side, and then return to their native abodes for protection and security.

But though the reptile exists two, and sometimes three years, throughout all that long duration it offers but little to excite curiosity: its most striking peculiarities command our attention during the short interval of its fly state, into which are crowded the most important transactions of its life. The peculiar sign by which we may discover that this reptile will shortly change to a fly, consists in a protuberance of the wings on the back; about that time the smooth and depressed form of the superior part of the body is changed into a more swollen and round figure, so that the wings in some measure become perceptible through the external covering.

As but a very few species of these insects are natives of England, the curiosity of the naturalist can only be sufficiently indulged by walking, about sunset, along the banks of the Rhine, the Seine, or some other continental rivers in temperate climates; where, for the space of about three days during the middle of summer, their numbers and assiduity are perfectly astonishing: the thickest descent of the flakes of snow in winter seems hardly to equal their numbers; the whole air appears as if animated by the new-born race; and the earth itself is almost entirely covered with their remains. The aureliæ, or reptile insects, as yet beneath the surface of the water, wait only the approach of the evening, in order to commence their transformation; the more industrious divest themselves of their exuviae about eight o'clock, and the most tardy are transformed before nine. Nothing, indeed, seems to be effected with more facility than this last metamorphosis; the aureliæ are no sooner raised above the surface of the water, than their old sheathing-skins burst; from the cavities of which flies issue, whose wings instantly unfolding, bear them into the air. Millions of aureliæ ascend in this manner to the top; and, instantly becoming flies, fill all the vicinity with their flutterings. But these sportings are speedily terminated; for the whole swarm, in the space of two or three hours, falling to the ground, covers the earth, after the manner of deep snow, for several hundred yards on each side of the river.

The males and females, during their very limited existence, are differently employed. The former, quite inactive, and apparently without desires, seem only born to die: unlike the males of other insects, they neither pursue the females, nor shew any aversion to them; and, after fluttering for an hour or two, drop down dead. But, with respect to the latter, the case is very different; for scarcely have they left the surface of the water, and dried their wings, when they hasten to drop their eggs back again; and these they deposit according to their different situations, sometimes on the water, and at others on the land.

But as this account may perhaps be unsatisfactory to the inquisitive naturalist, who will probably enquire by what means these eggs are fecundated, as no copulation whatever appears to take place between the sexes during their transitory excursions in air; we shall answer his reasonable enquiry by first laying

laying before him the opinion of the ingenious Swammerdam, who informs us, that they are impregnated, in the manner of fish-spawn, by the males, after being ejected by the females. But, besides that this doctrine is exploded even from the history of fishes, it is certain that the males have not time to perform this operation, as the eggs drop to the bottom the instant they fall into the water. Reaumur, who is of a contrary opinion, admits that they copulate; but says, that the act bears a proportion in shortness to the small duration of their lives; and consequently must be so quickly accomplished, as to be scarcely perceptible. This, however, is at best but sporting a theory; and it is probable, that as many insects are known to breed without any impregnation from the males, so the Ephemera may probably be of the number. But though this branch of natural history is still unauthenticated, certain it is that, of all insects, this appears to be the most prolific. As it flutters on the superficies of the water, two clusters may be observed to issue from the extremity of it's body, each containing about three hundred and fifty eggs. Indeed, it would seem as if there was a necessity for such a supply, as, in their reptile state, these insects constitute the favourite aliment of every kind of fresh-water fish. In vain do these animalcules form retreats at the bottoms of rivers, from which they seldom remove; various kinds of fish constantly disturb their repose, and thin their numbers. For this reason fishermen diligently collect a sufficient quantity of these insects, as proving the most grateful bait; and thus turn the rapacity of the fish to their own destruction.

Though the short span of life prescribed to the generality of these little animals does not exceed two or three hours, there are some species which exist for several days; and one in particular, after quitting the water, has a second slough to cast: these are often traced in the fields and woods at a considerable distance from that element, though they are more frequently observed in it's vicinity. They are also at times found adhering to walls and trees, frequently with their heads downward, without either changing their situations or possessing the smallest visible motion. In this condition they wait for the moment of their liberation from the last surrounding incumbrance; and, having at last attained to a state of perfection, speedily die.

For a particular description of some of the most curious Ephemera, see DAY-FLY.

EPOPS. A name given by some ancient writers to the bird called by modern ones upupa; in English, the hoopoe. See HOOPOE.

EPTACTIS. An appellation sometimes given to a species of star-fish of the astrophyte kind, whose rays or branches, on their first projection from the body, are only seven in number, but which in time diverge into many more.

EQUUS. The classical name of the horse. See HORSE.

EQUUS MARINUS. An appellation given by some naturalists to an animal very different from the hippopotamus or river-horse, and more usually known under that of the morse.

ERANDGAAS. A fowl of the goose kind, noticed by some authors, and by them described as being somewhat smaller than the common wild goose. The head grey; the neck adorned with a red ring; the breast, wings, and neck, grey; and the feet red. Ray seems to question the reality of this account.

ERICA. An appellation given by some naturalists to the common herring, the chalcis of Aristotle.

ERINACEUS. See HEDGE-HOG.

ERINOPTERUS. See PRIVET-FLY.

ERMINE; the *Mustela Erminea* of Linnæus. This animal, which is also called the Stoat, so greatly resembles the weasel in it's size and conformation, that many naturalists, and Linnæus among their number, have given but one description of both.

The Ermine, however, differs from the weasel in being nine inches long; whereas the latter seldom exceeds six. The tail of the stoat, which is always tipped with black, is longer in proportion than the body, and better covered with hair; and the edges of the ears, and extremities of the toes, are of a yellowish white hue. But though the colours of the Ermine and the weasel are nearly alike, (being a lightish brown in summer and white in winter in the more northern parts of Europe) even then the weasel may be easily distinguished from the Ermine by the tip of the tail, which in the latter is always black.

The fur of the Ermine is well known to be one of the most valuable kinds hitherto discovered; but it is only in winter that it possesses it's proper colour and consistence. During the summer season, the Ermine, as before observed, is brown. And, indeed, this change of colour in the hair of quadrupeds in some measure prevails in all: the horse, the cow, and the goat, evidently vary their hues in the beginning of summer, the old hair then falling off, and shorter supplying it's place, but generally of a darker and more glossy hue.

What in this our temperate climate obtains in a small degree, prevails in a much greater in those regions where the winters are long and very severe, and the summers short, and yet intensely hot. During these last seasons, the animal divests itself of it's warm coat of fur, which would prove very inconvenient, and continues for two or three months in a state somewhat resembling that of the ordinary quadrupeds of milder climates. At the approach of winter, however, with the increase of the cold, the coat of hair seems to thicken in proportion: from being coarse and short, it lengthens and grows finer; while multitudes of small hairs springing up between the longer ones, thicken the fur to an extraordinary degree, and communicate to it all that warmth and softness which is peculiar to hyperborean animals.

To present our readers with a philosophical account of the causes of this remarkable warmth in the furs of northern quadrupeds, would perhaps be attended with some degree of difficulty. It may indeed be said, that nature thus fits them for the climate; and, like an indulgent mother, when she exposes them to the rigours of an intemperate winter, supplies them with coverings proper for withstanding them. But though this may be true, it does not amount to a physical demonstration: however, it is observable with respect to quadrupeds, as well as the human species itself, that a thin meagre diet has a tendency to produce long hair; and that children who have been sparingly fed, as well as famished dogs and horses, are generally more hairy than others whose aliment has been dealt out to them more plentifully. This may perhaps be assigned as one cogent reason why animals inhabiting the northern climates are, during the brumal seasons, more hairy than those of milder ones; for

at those periods the whole country is covered with deep snow, and the provisions which the creatures are then able to procure are both scanty and precarious. The progressive fineness of the fur may also arise from the intenseness of the cold, which contracting the pores of the skin, the hair of course assumes the shape and size of the apertures through which it grows, as wires are extended by being drawn through smaller orifices. But, leaving such arguments to the investigation of the curious, suffice it to remark, that all the animals of the arctic climates may be said to possess their winter and summer garments, except near the poles, where the cold is always so very severe, and food so extremely scarce, that one unvarying colour universally distinguishes the quadruped inhabitants.

As Ermines are chiefly valuable when clothed in their winter attire, we shall consider them in that point of view. Daubenton, we are told, procured one of them covered with its white winter fur, which he put into a cage, that he might observe the process of moulting its hair. He received it at the beginning of March: in a very short time it began to shed its coat, and a mixture of brown was observed to prevail among the white hairs; so that, by the ninth of that month, the head was almost entirely of a reddish brown hue. This colour seemed at first gradually to extend along the neck, and down the back, in a stripe half an inch in breadth; the fore-part of the legs then assumed the same colour; and a part of the head, the thighs, and the tail, changed last of all: but at the end of the same month, no white remained, except on the throat and belly, which in this species always retain that hue. However, he did not enjoy the satisfaction of seeing the animal resume its former whiteness, though he kept it upwards of two years; which circumstance undoubtedly originated from its confinement, the quantity of its food, and the superior clemency of a French to an arctic winter. During its confinement, this animal always appeared wild and untractable, and even in a kind of violent agitation, except when asleep, in which state it often continued three parts of the day. The eyes of this very elegant little creature were sprightly; its physiognomy was pleasant; its motions were so swift, that the eye could not follow them; but its smell was very rank and offensive. Its aliment consisted of eggs and flesh, but it usually suffered both to become corrupted before it touched them. As some animals of the Ermine kind are known to be very fond of honey, it was accordingly set before this creature; which, after being deprived of other food for three or four days, eat of that substance, but died very shortly afterwards: a convincing proof of its being a distinct species from either the pole-cat or the martin, which feed on honey with avidity, though they greatly resemble the Ermine both in their shape and disposition.

The furs of Ermines in the north of Europe and in Siberia constitute a valuable article of commerce; in which countries those creatures are by far more numerous than in the temperate climates. In Siberia, they burrow in the fields, and are taken in traps baited with flesh. In Norway, they are either shot with blunt arrows, or caught in snares: each of these ambushes is composed of two flat stones, one of them being propped up by means of a piece of wood, to which is fastened a baited string; so that whenever the animal attempts to pull it away, the stone drops, and crushes it to death.

The Ermine is sometimes found white in Great Britain, and is then called the white weasel. Its fur, however, is of very little value, possessing neither the thickness, closeness, nor whiteness, of those which are imported from Siberia. Indeed, the hair of this creature in every country changes in a course of time; for, as much of its beautiful whiteness is imparted to it by certain arts practised by furriers, so its natural colour again returns, and its former brightness can never be restored.

ERNE. An appellation given by some naturalists to the cinereous eagle. See EAGLE, CINEREUS.

ERYTHRINUS. A fish called by some authors rubellio and travolino; and, by the Venetians, alboro, or arboro. It is but a small species, somewhat resembles the gillhead in shape, and is entirely of a pale red colour. The tail is forked; the nose is sharp; and the eyes, which are large, have silvery irides, and sometimes a slight tinge of red intermixed with the white. The mouth is small; the fore-teeth are broad, the hinder ones being rather tubercles than teeth; and the coverings of the gills are scaly. It has only one dorsal fin, the anterior rays or nerves of which are prickly, the other being soft and smooth to the touch.

ERYTHROCYANEUS. An appellation given by some authors to the red and blue macaw, with a cunifform tail, and the sides of the head naked and rough. See MACCAW.

ESCALLOPS. A family of bivalve shells; the essential character of which is a trigonal sinus, and an elastic cartilage for its hinge in the very centre of the top of the shell. The subordinate characters of Escallops consist in their being eared, which indeed most authors have made their chief distinction; whereas there are other eared shells besides Escallops, viz. the spondyles and margaritiferae; and, vice versa, there may be Escallops without ears. Another inferior character is that of the tops running into a perfect straight line, and thence gradually widening to a round bottom.

The species in this family are very numerous; some of which are very curious and beautiful, namely, the ducal mantle; the compass, or sole; the duck's foot, or coral; and some others.

It is perhaps worthy of remark, that the colours of the under shells of Escallops are always fainter than those of the upper ones; and that the valves have sometimes a different tinge, as may be observed in the compass, or sole, which has one valve of a chestnut brown, and the other milk white.

The generality of authors rank these shells as a particular family, and call them peccens. Gualtieri makes different genera of those which have equal, and such as have unequal valves; the former he calls peccen, the latter concha peccinata; and the Escallops with unequal or single ears he terms peccunculi. Linnæus makes them a genus of oysters, and has accordingly arranged them under that appellation in his three hundred and thirteenth genus.

It has been asserted by some naturalists, that Escallops move with such amazing force, as sometimes to bound out of the catcher in which they are inclosed; and that their manner of leaping, or raising themselves up, consists in forcing their under valves against those substances on which they lie.

ESCH. A name given by Hildegard, and some others, to the fish called in England the grayling, or umber; and, by the generality of authors, thynrallus.

rallus. It is of the coregonous kind; and Artedi distinguishes it by the upper jaw being longest, and the back-fin containing twenty-three bones. In Germany it is called asch; and, in Italy, temello.

ESOX. A genus of fishes of the class of abdominales in the Linnæan system; the characters of which are, that they are of the malacopterygious kind; that the branchiostege membrane contains from seven to twelve bones; that the body is oblong; and that the dorsal fin is small, and placed near the tail. Linnæus enumerates nine species of this genus, and Artedi only three.

EWE. The female of the sheep kind.

EXACTIS. An appellation given to a species of star-fish of the more branchiferous kind.

EXOCÆTUS. A genus of fishes of the order of abdominales in the Linnæan system; and, in the Artedian, of the malacopterygious or soft-finned kind. The characters are these: the branchiostege membrane contains ten bones, four of which are broad, and covered by the opercula of the gills; the pectoral fins are very long; the dorsal fin is placed near the tail; and the scales are large. There are only two species of this genus.

EXORMISTOS. An ancient appellation for a species of the petromyzon, the lampetra fluviatilis, called in England the lampern. Artedi distinguishes this fish by the name of the petromyzon with only one series of small teeth in the verge of the mouth, and a few diminutive ones below. See MUSTELA, LAMPETRA, and PETROMYZON.

EXOS. A name given by Gesner and Rondeletius to the fish commonly called the huso, or ichthyocollis piscis. It is properly a species of the accipenser; and is distinguished from the common

sturgeon by being destitute of tubercles. See ACCIPENSER.

EXQUIMA. A kind of monkey, very common on the coast of Guinea. The hair on the back, which is of a reddish brown colour, appears as if singed, and is interspersed with white spots; the belly and chin are entirely white, and from the latter depends a beautiful snow-white beard about the length of two fingers. When this animal is irritated, it draws back it's lips; and, exposing it's teeth, shuts it's jaws very nimbly, and chatters remarkably loud. It is a very active creature, and subsists on fruits and roots.

Another species of this monkey is found in Guinea, of the same size as the former, and of a blackish brown colour on the greatest part of the body; but the belly is a blueish grey, and the tail is somewhat tawny. The mouth and nose are blue; the cheeks are adorned with a great number of yellow hairs clustered together like those which compose the beard of the goat; and the legs and feet are wholly black. This is also a very sprightly, sportive animal.

There is likewise a third variety of the Exquima, but much smaller than either of the former. The colour of this creature is an admixture of brown, yellow, and grey: the head is small; and it has neither tail nor beard.

EYE-SUCKER. A small marine insect, sometimes found adhering by it's snout to the eye of the sprat, from which circumstance it receives it's name. It is about three inches in length, of which the head occupies one quarter. The body, which is somewhat thicker than a hog's bristle, is of a lively green colour.

EYE, GOLDEN. See DUCK, GOLDEN-EYED.

F.

FABER. The classical appellation of the dorée.

FACETAMUS. A kind of lizard known at Rome and Naples by the name of the tarantula.

FAITIERE. A species of shell-fish so termed by the French on account of it's shape, which resembles the roof of a house; and, by classical authors, called concha imbricata. This shell, which is of the bucardium or ox-heart kind, has seven longitudinal ribs and a great number of transverse laminæ; so that it bears a striking similitude to the rafters and cross-beams of a house.

FALCINELLUS. See FASCINELLUS.

FALCON. A distinct genus of birds of the hawk kind in the Linnæan system; the characters of which are, that the bill is strong and hooked; that the base is covered with a cere or naked skin; and that the head is feathered, and the tongue bifid.

Linnæus classes no less than thirty-two species under this genus; among which are the eagle, the buzzard, the hawk, and the lanner.

Falconry was once the favourite amusement of our ancestors; and persons of rank seldom made

their appearance without their hawks perched on their hands; which, in ancient paintings, are the criterions of nobility. Harold, one of the ancient kings of England, and who, before his elevation to the throne, went on a most important embassy into Normandy, is drawn in an old bas-relief as embarking for that country with a bird on his fist and a dog under his arm; and, in an ancient picture of Henry VI. one of his courtiers is represented in the same attitude. In those early times, it was thought sufficient for the sons of noblemen to wind the horn, and carry their hawks properly; the accomplishments of literature being left to those who had their fortunes to acquire. Indeed, this diversion was in such high esteem among the nobility all over Europe, that Frederic, Emperor of Germany, did not think it beneath his dignity to write a treatise on that subject. The expences attendant on this sport were very considerable. In the time of the old Welsh princes, the king's falconer was the fourth officer in the state; but, notwithstanding his honourable appointment, he was interdicted swallowing more than three draughts of beer daily from his horn, lest being thereby intoxicated, he should

neglect his duty. In the reign of James I. Sir Thomas Monson paid one thousand pounds for a cast of hawks; and therefore it cannot appear at all surprising that the laws were formerly so extremely rigorous in preserving an amusement which was carried to such an extravagant pitch. By a statute of Edward III. the stealing of a hawk was deemed felony; and the carrying away it's eggs, even from a person's own ground, was punishable with imprisonment for a year and a day, together with a mulct at the king's pleasure. In the reign of Elizabeth, the term of confinement was reduced to three months; but the offender was condemned to remain in prison till he could procure security for his good behaviour during the space of seven years. The art of shooting, indeed, was but little practised in those early times; and the hawk was then greatly valued, not only for affording much diversion, but for furnishing the tables of the opulent with delicacies which could not be obtained by any other means.

The generous breed of falcons, or hawks, which have been introduced into the service of man, are distinguished from all the others by the peculiar length of their wings, which reach almost as far as their tails: in these, the first quill of the wing is almost as long as the second, and terminates in a point which begins to diminish about half an inch from it's extremity. Thus the noble breed are discriminated from the baser race of kites, sparrow-hawks, and buzzards, whose tails are longer than their wings, and in which the first feather of each wing is rounded at the extremity. In the generous race likewise, the second feather of the wing is the longest; but, among kites, sparrow-hawks, and buzzards, the fourth is the most extensive.

The magnanimous kinds of Falcons are endowed with many natural powers, of which the ignoble are wholly destitute. From the superior length of their wings, they are swifter in the pursuit of their game; from a confidence in their velocity, they are emboldened to attack it; and, from an innate generosity, they contract an attachment to their feeders, and are consequently more docile and tractable than birds of a baser sort.

In order to train up a Falcon to hunt for it's master, as well as to present him with such game as is killed by it, no small degree of skill and assiduity are requisite. Numberless treatises have been written on this subject, which are now, as well as the sport itself, almost consigned to oblivion: indeed, to modern readers, works on such a topic are perfectly unintelligible; for falconers used a language peculiar to themselves, in which they conversed and wrote with a professional pride. However, we shall briefly exhibit the most approved modes by which the Falcon may be brought to answer it's original destination.

The manager of this bird begins by clapping straps on it's legs, called jesses; and to them are affixed rings bearing the owner's name, by means of which the Falcon may be recovered, if in danger of being lost. To these rings are added little bells, which serve to notify the situation of the animal though invisible to the eye. It is always carried on the fist, and obliged to refrain from sleep; and, when it proves stubborn, or attempts to bite, it's head is immediately plunged into water. Thus, by hunger, watching, and fatigue, the Falcon is constrained to suffer it's head and eyes to be covered with a hood or cowl; which troublesome bu-

siness is frequently continued for three days and nights without much intermission: however, at the expiration of that time, the necessities of the animal, together with it's privation of light, generally divest it of every idea of liberty, and bring down it's natural ferocity. It's master concludes that it is sufficiently tamed, if it permits it's head to be covered without resistance; and if, when uncovered, it seizes the meat laid before it with a degree of patient satisfaction. A repetition of these lessons by degrees ensures success. The wants of the Falcon being the chief principle of it's dependence, various methods are taken to increase it's hunger, particularly that of giving it little balls of flannel, which it swallows with avidity. Having thus excited the appetite, care is taken to satisfy it; and thus gratitude attaches the bird to the person who acts only as it's tormentor.

When the first instructions have proved successful, and the Falcon discovers tokens of docility, it is conveyed to some confined place; it's head is uncovered; and by soothing it with food at different times, it is gradually taught to jump on it's master's hand, and to continue there; and, after being confirmed in this habit, it is then judged proper to acquaint the creature with the lure, which is only a stuffed figure of some bird the Falcon is destined to pursue, perhaps a heron, a pigeon, or a quail; and on this lure care is always taken to give the creature it's food. Indeed, it is necessary that the bird should not only be familiarized to this, but also fond of it, and delicate in it's food when shewn it. As soon as the Falcon has alighted on this figure, and tasted the first morsel, some falconers take it away; but by such practices there is some danger of intimidating the bird: therefore, whenever the creature attempts to fly, the surest method is to seize it, and suffer the animal to feed at large; and this serves as a recompence for it's docility. The use of this lure consists in flattering the Falcon back when it has mounted into the air, though this method does not at all times prove effectual; and, indeed, it is always proper to assist it by the voice and signs of it's master. When these lessons have been pretty often repeated, it is then necessary to study the character of the bird; to address it frequently, if it seems inattentive to the voice; to flint it in it's food when it does not come readily to the lure; to keep it awake if it is not sufficiently familiar; and to cover it frequently with the hood if it is not fully reconciled to the deprivation of light. The freedom and docility of the Falcon being thus perfected in the field of instruction, it is then conveyed to some extensive plain, but still limited in it's motions by a string about twenty yards in length; and being covered as before, the falconer calls it at the distance of several paces, at the same time shewing it the lure, on which it flies, and is permitted to take a large morsel of the food affixed to it: on the day following the lure is held up to the bird at a greater distance; and afterwards at the utmost length of the string. The live game constitutes the next object of allurements, but either in a disabled or tame state, that the creature may conquer it with facility. The Falcon having seized it several times while confined by the string, is then left entirely at liberty to pursue wild game: at that the Falcon flies with eagerness; and, having either seized or killed it, is brought back again by the voice and the lure.

This bird may be taught to fly at any game whatever;

whatever; but falconers have generally confined their attention to such only as either yield them profit in the capture, or pleasure in the pursuit. The hare, the partridge, and the quail, generally compensate the trouble of taking them. But the chase of the heron, the kite, or the woodlark, affords the most agreeable diversion: when these birds perceive themselves in danger from the approach of the Falcon, they immediately mount upward, instead of flying, like most others, directly forward; and, while their eager pursuer endeavours to rise above them, both parties gradually diminish to the view of the gazing spectators below till they are totally lost in the clouds: but, descending shortly after, they are seen struggling together, the one exerting every effort of rapacious attack, and the other making a desperate defence. A period, however, is speedily put to the unequal conflict; the Falcon always comes off victorious; and the other animals, being either killed or disabled, become an easy prey.

As birds in general fly straight forward, the sportsman soon loses sight of the chase; and, besides, is in danger of losing his Falcon: they are therefore not much pursued when amusement is the object. However, to a person who regards only the address of the chase, the pursuit of the lark by a couple of merlins is one of the most delightful spectacles which this exercise is capable of affording; and consists in beholding one of the merlins using every exertion in its power in order to get the ascendancy of the lark; while the other, hovering in a lower situation, waits the most favourable opportunity for seconding the efforts of its companion: thus, while the one stoops to strike its prey, the other seizes it whenever it descends.

Such are the natural and acquired habits of these birds; which, of all others, possess the greatest strength and courage in proportion to their size. While the more ignoble Falcon tribe approach their prey sideways, these, in their wild state, dart perpendicularly on their game, and either devour it on the spot, or carry it off if not too ponderous to retard their flight. They are also at times seen to descend, in a straight line, from an amazing height, and to dart on their prey with astonishing celerity.

The species of Falcons, properly so called, are the following.

FALCON, GYR. This elegant species exceeds all others with respect to size, approaching nearly to that of the osprey. The irides are dusky; the bill is yellow, and much hooked; the throat is pure white; and the whole plumage is of the same colour, except that it is marked with dusky lines, spots, or bars. On the head, breast, and belly, there are narrow dusky lines thinly scattered, and pointing downwards; the feathers of the back and wings are marked with black cordiform spots, and the middle ones of the tail with a few bars; the thighs are clothed with long fine white feathers; and the legs are yellow, and feathered a little below the knees.

This bird is sometimes found entirely white. It was in high estimation when falconry was more fashionable than at present, and always used for the noblest game, such as cranes and herons. The Gyr Falcon inhabits the northern parts of Scotland, and is at times seen in the vicinity of Aberdeen.

FALCON, PEREGRINE. The size of this bird is equal to that of the moor buzzard. The bill is

short, strong, much hooked, armed near the end of the upper mandible with a very sharp process, blue at the base, and black at the point. The feathers on the forehead are whitish; the crown of the head is black intermixed with blue; and the hind part of the neck is black. The back, scapulars, and coverts of the wings, are elegantly barred with deep black and blue; the quill-feathers are dusky, marked with elliptical transverse white spots; the tail is barred with several dusky and blue strokes; the throat is white; and the fore-parts of the neck and upper part of the breast are white tinged with yellow. The remainder of the breast, the belly, and thighs, are white inclining to grey, and crossed with dusky strokes pointed in the middle. The feathers of the tail are of equal lengths, and beautifully barred with blue and black; the legs are short and yellow; and the toes are very long.

This species seems to vary. Loranzi, in describing the male Peregrine Falcon, has made all his colours darker, and the head and upper part of the body almost black; and Pennant says he saw one that was shot in Hampshire, the whole underside of the body of which was a deep dirty yellow, but the black bars were the same as in that above described. It is probable, however, that this variation arises from the difference of sex, or from age.

Peregrine Falcons breed among the rocks of Llandidno, in Caernarvonshire; which have long been famous for producing a generous race, as appears by a letter extant in Gloddaeth library, from the Lord Treasurer, Burleigh to an ancestor of Sir Roger Mostyn, in which his lordship thanks him for a present of a fine cast of hawks taken on these rocks, and which still belong to the family. In the north of Scotland they are very common, and sometimes trained to falconry by the few gentlemen there who still delight in this amusement. Their flight is inconceivably rapid; for one of them, which had been trained by a gentleman in Angushire, having escaped from him with two heavy bells appended to each foot, was killed, in less than two days afterwards, near Mostyn in Flintshire.

FALCON, SACRE. This species, which, except the Gyr Falcon, is the largest, has a remarkably big head, a short blue beak, and a body longer in proportion than the rest of the tribe. The head is grey, the crown being flattish; the eyes are large and black; the nostrils are small; and the back and breast are spotted with brown. The insides of the thighs are white spotted with black; and the feet and legs are generally blue, though sometimes whitish spotted with yellow.

FALCON, MOUNTAIN. This bird is about the size of the gofhawk, but the body is thicker. The head is roundish, except on the top, where it is a little depressed, and covered with cinereous feathers mixed with black; the beak, which is strong, short, and crooked, has a great number of fine slender feathers resembling hairs rising from its base; the throat and part of the breast are spotted with ash-colour; the body is generally of a brown dappled hue, resembling rusty iron, but sometimes varying to blackish with small lines of white; the thighs are clothed with long black feathers; and the feet are of a dusky brown colour. The Mountain Falcon is very rapacious and intractable.

FALCON, GREY. The Grey Falcon is about the size of the raven. The bill is of a blueish colour, short, strong, and much hooked; the head is small, and depressed on the top; the fore-part being a deep brown, and the hind white. The sides of the head

head and throat are cream-coloured; the belly is white, with oblong black spots; and the hind part of the neck and the back are a deep grey. The wings are very long; and, when closed, reach beyond the tail: the first quill-feathers are black, with white tips; and the others are a blueish grey, having their inner webs irregularly spotted with white. The tail is long and cuniform; the two middle feathers of which are the longest, and plain, the rest being spotted; and the legs are long, naked, and yellow.

FALCON, GENTLE. This species is of an elegant conformation, and somewhat larger than the goshawk. The cere and legs are yellow; the irides are a dull white; the pupil is large, and of a full black hue; and the head is of a light rust-colour with oblong black spots. The whole under-side, from the chin to the tail, is white tinged with yellow, each feather being marked with cordiform dusky spots pointing downwards. The back is brown; the quill-feathers, which are dusky, are barred on their exterior webs with black, and on the lower parts of their interior ones with white. The coverts of the wings and the scapulars are brown, edged with rust-colour; and the wings reach only to one-half of the length of the tail. The tail itself is marked with four or five black bars, and the same number of cinereous ones, the first being edged both above and beneath with a line of dull white.

Great caution should be observed in describing hawks, no other birds being so liable to change their colours during the two or three first years of their lives; and a want of attention to this circumstance has occasioned their numbers to be greatly exaggerated: but the proper marks to be attended to, for the purpose of forming the characters of the species, are those on the quill-feathers and the tail, which never vary. Writers on falconry have given various names to the same kinds in different periods of their lives, which naturalists have adopted, and described as distinct tribes; and even the accurate Ray has been so far misled as to copy them. Though the Falcon, the Gentle Falcon, and the Haggard, are made distinct species, they in reality form but one; and for that reason we shall not trouble our readers with unnecessary repetitions, which would only tend to perplex them.

FALCON, WHITE. The whole body of this bird is pure white, except a few faint yellow spots, which cannot be distinguished but by a very nice inspection; the wings, indeed, are perfectly white, without the least mixture. The colour sufficiently distinguishes this species from all other birds of the same kind.

FALCON, BARBARY. This sprightly and majestic bird has a large black beak, and open yellow nostrils. The eyes are of a dark hazel colour, encircled with yellow rings; the top of the head is of a pale ash-colour, beautifully spotted with black; the feathers on the back, shoulders, and part of the wings, are nearly of the same hue, and equally ornamented with black spots; the breast, belly, and thighs, are yellowish, inclining to white, the upper part of the breast being a little shaded with blue. The wings are very long; and, when closed, reach almost to the end of the tail, which is blueish, with six or seven dusky-coloured streaks running across it. Part of the thighs, and the lower part of the belly, are marked with curious oblong red spots resembling ermine; the legs and feet are yellow; and the claws are black.

FALCON, RED INDIAN, OF ALDROVANDUS. This naturalist possessed two of these birds, which he conjectured to be male and female. The top of the head of the female was depressed; the beak was cinereous, and the skin which covered it's base was yellow. From the exterior corner of the eye proceeded an oblong reddish spot; and the breast and under-part of the body were reddish interspersed with a few cinereous spots. The male differed from the female only in being somewhat less, and in his colours being generally deeper.

FALCON, INDIAN CRESTED. This species is of the size of the goshawk. The head is flat, black, and crested; and the crest, which is double, hangs down on the back part of the head. The neck is red; the breast and belly are black and white, being marked with alternate transverse lines of those colours; the irides are yellow; the beak is a very deep blue, or rather black, especially near the point; and the base is covered with a yellow membrane. The legs are feathered down to the very feet, which are yellow, and armed with extremely black claws; the edges of the lesser feathers of the wings are white; the tail is alternately striped with white and ash-coloured streaks; and the other parts are blackish.

A bird of this species was imported into England in the reign of King Charles II. and was first described by Ray.

FALCONE. An appellation given by some authors to the milvus or flying-fish.

FALLOW-FINCH, or FALLOW-SMICH. A name sometimes given to the oenanthe, more commonly called the wheat-ear, and by some authors octiflora.

FAREN. The Swedish appellation for a fish peculiar to that country. It is of the genus of cyprini, and distinguished by Artedi under the name of the yellow-eyed cyprinus with twenty-seven bones in the pinna ani.

FARIO. A term used to express the salmon when about half-grown, after it has passed that state in which it is called the salar, and before it has arrived at it's full growth.

FASCINELLUS. A bird so called by Gesner and Aldrovandus, bearing a strong resemblance to the heron kind. The head, neck, breast, back, belly, thighs, and rump, are of a tawny colour; in the middle of the back there is a darkish green spot; and the wings and tail are nearly of the same colour. The bill is blackish, very long, and hooked at the extremity; and the feet are of the same hue.

FATHER LASHER; the Cottus Scorpius of Linnæus. A fish of the cottus kind, called by Artedi the smooth cottus without scales; having several spines on the head, and the upper jaw being a little longer than the under. The head, which is very large, has a most formidable appearance, being armed with vast spines, by which the creature combats every enemy that attacks it, inflating it's cheeks and gill-covers to a prodigious size. The nose, and the space contiguous to the eyes, are furnished with short sharp spines; and the covers of the gills are terminated by some very long, strong, and sharp-pointed ones. The mouth, which is large, contains two rows of minute teeth; the roof being furnished with a triangular spot of small ones. The back is much elevated; the belly is prominent; the lateral line is rough; but the rest of the body is very smooth, tapering towards the tail. The first dorsal fin consists of eight spiny rays,

rays, and the second of eleven soft ones; the pectoral fins, which are large, are made up of sixteen rays, the ventral of three, and the anal of eight; and the tail, which is rounded at the extremity, is composed of twelve bifurcated rays. The colour of the body is a dusky brown, marbled with white; and sometimes stained with red; the fins and tail are transparent; and the belly is a silvery white.

This fish, which seldom exceeds eight or nine inches in length, is ordinarily found on the rocky coasts of this island, lurking under stones, where it sometimes seizes a bait. It is very common in the Newfoundland seas, where it is called scalping; and also on the coast of Greenland, in which country it constitutes the principal food of the natives: and, when made into soup, it is said to be both agreeable and wholesome.

FAUSSE-CHENILLE. A large class of worms produced from the eggs of several species of four-winged flies, and so denominated by Reaumur and other naturalists. These worms, with respect to their general shape, have so much the appearance of caterpillars, that they have led many writers on insects into an opinion of their being really so. Their bodies, like those of caterpillars, are long, and composed of several joints or rings; their skins are also of the same consistence; and in many species these creatures are variegated with the most beautiful colours, disposed after the same manner as those of smooth caterpillars. Both these insects have a great number of legs, of two kinds; some membranaceous, others scaly. The worm and the caterpillar have each six scaly legs; but the membranaceous ones are different in number, and alone sufficient to constitute a distinction between them. The caterpillars never have more than ten of these; which, with the scaly ones, make sixteen, the greatest number of legs belonging to their kind: but the worms have always twelve legs at least of the former kind; which, together with the six scaly ones, make the whole number eighteen; and many species have that number of membranaceous legs alone. The membranaceous legs of the worms differ also from those of the genuine caterpillars, in wanting the hooks at their extremities, which those of the latter have. Hence the legs alone afford a sufficient basis of distinction between the caterpillar and the Fausse-Chenille, or caterpillar-worm. But the shape of their heads affords a still more obvious distinction; and by this they may always be known at first sight: the heads of the various species of caterpillars are of several very different shapes; some are short, others long; some are more or less depressed; and some terminate in a sharp point; while others are distinguished by a sort of interspace or division in the back part. Such are the perceptible variations in the heads of the several kinds of genuine caterpillars: but those of all the Fausse-Chenilles are of one shape, round and very convex, so that they appear as part of a small sphere. The mouths of these and the genuine caterpillars are wholly similar; and the stigmata are placed in the same manner. However, the eyes of the two kinds again distinguish them; the Fausse-Chenille having only two, which are very large and prominent, and placed on each side of the head; whereas the caterpillar has five eyes on each side of its head, placed in a circular direction, and too small to be seen with the naked eye.

The Fausse-Chenilles likewise differ from the

common caterpillars in their manner of remaining on the leaves of plants: the caterpillar is always extended at its full length when feeding or at rest; but the former, though it stretches its body to its full length when feeding always rolls it up into a spiral figure when at rest, making several circular convolutions, of which the head is at the end of the outermost, and the tail at the very centre of the inner one. When seizing on their food, these insects give themselves various singular contortions; and it is a very whimsical sight to observe a considerable number of those kinds which live in societies, attacking different portions of the same leaf at once, and each giving its body a different direction at the same time.

This creature, when it finds the season of its transformation into the nymph state approaching, begins to form a case in which it may undergo this change, and remain during the destined time, without being exposed to external injuries. For this purpose, it spins a web of silk, shaped like a small egg, which has nothing remarkable externally; but, when dissected, it is found to be composed of two different substances: at least, of two substances of very different mechanism, though the materials of both are the same. The exterior case is reticulated, and composed of very strong threads woven into a loose open net-work; but the interior one is formed of extremely fine threads, woven into such a close stuff that no loom can equal its fabric. The outer strong and coarse web is evidently intended for the better defending and protecting the insect from danger; and those two distinct cases barely adhering to one another, when the exterior one is separated, the interior still remains complete. The strength of the external shell is extremely requisite, as well as the close texture of the internal one, to defend the inclosed animal in the nymph state from several devouring insects. The ants, in particular, are very fond of these nymphs, and will hunt out the cases wherever they are to be found.

The flies produced from these insects are of that kind which are destitute of trunks, but are furnished with strong teeth on each side of their heads, which closing in the middle of their mouths, are able to cut any substances to pieces which the animals have occasion to penetrate. The first use of these teeth is to eat holes through the double webs, in which these creatures find themselves inclosed at their birth. All the flies of this kind have a general resemblance to each other, and may be traced to the same family, though very different in colour and other obvious characters. They appear a dull inactive race, having very little motion; their wings are always crossed over their bodies, and form a sort of raised coverings; they contain several prominences and cavities; and appear as if they had been imperfectly expanded at the time of their emerging from the nymph state.

All the females of these flies are oviparous; and as their eggs must of necessity be lodged in cavities or niches made in the stalks or leaves of growing plants, nature has provided each of these creatures with two instruments destined solely for the purpose, and which are real saws made in the neatest manner with extremely minute teeth. But notwithstanding there are many different species of flies which have this sort of instruments, and several of them are very frequent on one of the most common of all garden shrubs, namely, the rose-tree; no author had observed these wonderful and elegant instruments till the time of Vallisnieri, who has de-

scribed and figured the weapons of a rose-tree fly, produced from a false caterpillar of that shrub, with two rows of teeth, one on each side, in the manner of the saw belonging to the *ferra piscis* or saw-fish.

FAUX BOURDON. An appellation given by Reaumur and others to the bees usually called drones in England.

FAUX PUCERON. A genus of insects so called by Reaumur, from their strong resemblance to the real pucerons. The two principal kinds of these are found on the backs of the leaves of fig-trees, and in little hollow balls at the summits of the branches of the box, formed of the upper leaves vitiated by the scars of these insects.

FAWN. An appellation given to a buck or doe of the first year. See **DEER**.

FEDOA. A name given by Gesner, and some other naturalists, to the godwit, more commonly called *ægocephalus*.

FELIS, in the Linnæan system of zoology, forms a large genus of quadrupeds of the order of *feræ*; the characters of which are these: the fore-teeth are small, obtuse, and equal; they have three grinders; the tongue is furnished with prickles all pointing backwards; and the feet are formed for climbing with retractile claws. To this genus belong the lion, tiger, leopard, lynx, ounce, catamountain, and domestic cat.

FELIS VOLANS. An animal described by Scaliger, and supposed to be what we call the flying squirrel. This creature has a loose membrane on each side, connecting the fore with the hinder legs; which it can distend at pleasure, and by means of which it is enabled to take such long leaps, as to appear to fly.

FELIS ZIBETHICUS. An appellation given by naturalists to the civet-cat, a species of the *viverra* in the Linnæan system. See **CIVET-CAT**.

FEMALE. An animal which generates within itself; so called in opposition to the male, which engenders in another. The female, in quadrupeds, and in birds, is usually smaller and weaker than the male; but, in predaceous birds, the female is the largest, strongest, and most courageous.

FERÆ. In the Linnæan system of zoology, one of the orders of animals and class of *mammalia*: the characters of which are, that they have sharp teeth; the upper fore-teeth are six in number; and the canine, or dog-teeth, are longer than the rest. Of this order are, the lion, the tiger, the bear, the cat, the weasel, the ferret, the didelphis or philander, the otter, the sea-calf, the dog, the badger, the hedgehog, the mole, the bat, and various others.

FERN-OWL. A provincial name for the *caprimulgus* or goat-sucker, called also the churn-owl. It is a very beautiful bird; and bears a stronger similitude to the cuckow than the owl kind.

FERRA. A fish called also the Gwiniad, or Guinead.

FERRET. An animal of the *mustela* or weasel kind; called also *mustela sylvestris*, *furo*, and *furunculus*.

This animal is a kind of domestic in Europe; but in its wild state it is a native of Africa, from whence it was originally imported into Spain, in order to free that country from the multitudes of rabbits with which it was over-run; and from thence the rest of Europe were supplied with it. It grows to the length of a foot; and has a very sharp nose,

red and fiery eyes, and round ears. The colour of the body is a pale yellow, but it is also found of all the colours of the weasel kind, white, black, brown, and party-coloured. It also resembles the weasel in the slenderness of its body, and the shortness of its legs. It is a lively, active animal; and the natural enemy of rabbits, sucking the blood of its prey, but seldom mangling it. The Ferret, though a native of the torrid zone, will breed in our climate, and brings forth from five to nine at a time; but it is apt to degenerate, and lose its savage nature, till an intercourse can be procured between it and the pole-cat; which in some measure restores the breed to its natural ferocity. The Ferret has the same disagreeable smell as the pole-cat; and, being unable to endure the rigours of our climate in a wild state, it is generally domesticated, and kept for the purposes of the warren. It is trained up to enter the rabbit-holes, and to drive the inhabitants into nets prepared for them at their mouths. To effect this, the Ferret is muzzled; else, instead of driving out the animals, it would only kill them, and suck their blood: but, by this contrivance, the rabbits escape from the Ferret, and precipitately run to the mouths of their holes, where they are entangled in the nets. Sometimes, indeed, it happens that the Ferret finds means to disengage itself from its muzzle, when it is usually lost to its master; for, finding all its wants supplied in the warren, it continues there till the severity of the weather proves fatal to its existence. In order to allure the Ferret from its retreat, the owners often burn straw and other substances at the mouth of the hole, or stamp with their feet over it: but this does not always succeed; for as there are often several avenues to each hole, the Ferret is neither affected by the noise nor the smoke, but continues secure at the bottom, sleeping the greatest part of its time, and waking only to satisfy the calls of hunger.

The female of this species is sensibly less than the male, whom she seeks with great ardour; and, it is said, that she often dies merely from not being admitted to coition. These creatures are usually kept in boxes like rabbit-hutches; and are furnished with wool, of which they make themselves warm beds, which serve to defend them from the rigours of the climate. They are generally fed with bread and milk; they breed twice a year; and some of them devour their young the instant they are produced.

The Ferret is an useful, but disagreeable and offensive animal: its scent is foetid; its nature is voracious; it is tame without attachment; and, such is its appetite for blood, that it has been known to attack and kill children in their very cradles. It is easily irritated; and though at all times its smell is offensive, it is then peculiarly so; and its bite is not to be cured without great difficulty.

FERRET, INDIAN. A name applied by some to express the animal known in America by the appellation of *quirpele* and *quail*. See **ICHNEUMON**.

FIARSING. A Swedish and Danish appellation for the *draco marinus*. It is a species of the *trachinus*, according to Artdi; and is distinguished from the rest by having its lower jaw longer than the upper, and being destitute of beards.

FIATOLA. A name given by the Italian fishermen to the *stromateus*.

FIBER, or CASTOR FIBER, of Linnæus. An animal with strong cutting teeth; short ears, hid

hid in the fur; a blunt nose; hair of a deep chefnut brown; a broad tail almost oval, horizontally compressed and covered with scales; with the fore-feet small, and the hind-feet large. The length of this animal, from nose to tail, is about three feet; and the tail is eleven inches long, and three broad. See **BEAVER**.

FIBULA. A class of echinodermata, having the mouth in the middle of the base, and the aperture of the anus on one edge. They are chiefly found fossil.

FICEDULA CANNABINA. A name sometimes given to the cannevarola, or lesser reed-sparrow.

FICUS. A peculiar species of sea-shell of the genus of the dolium, having a remarkably depressed clavicle, it's distinguishing characteristic.

FIELD-DUCK, FRENCH. A species of bustard, so called from it's flying near the ground, as the duck does near the water. It is as large as the pheasant; but the head is like that of the quail, and the bill like that of the hen. These birds are caught like partridges; they fly very swiftly at a small elevation from the ground, perhaps two or three hundred paces, and then alight: they likewise run with amazing fleetness. The head, back, and wings, are of a brownish yellow colour, variegated with black and white; the breast, belly, and thighs, are whitish; and the legs and feet are cinereous. There are three toes on each foot, as is usual in the bustard kind. The flesh is highly esteemed.

FIELD-FARE. This bird is of the thrush kind, and is called the *turdus pilaris* by ornithologists. It is larger than the common thrush; it's length is ten inches, and it's breadth seventeen. The head is ash-coloured, inclining to olive; and spotted with black; the back and greater coverts of the wings are of a fine deep chefnut; the rump is cinereous; and the tail is black, the lower parts of the two middlemost feathers, and the upper sides of the exterior feathers, excepted, the first being ash-coloured, and the latter white. The legs are black; and the talons are very sharp. This bird generally weighs about four ounces.

The Field-Fare is a bird of passage, spending the summer in the northern parts of Europe. It builds it's nest in the loftiest trees, feeds on all kinds of berries, and is particularly fond of those of the juniper. It visits Great Britain about Michaelmas, and leaves it the latter end of February or the beginning of March.

This bird, and the red-wing, are the *turdi* of the Romans, which they fattened with a composition of figs and bread. Varro informs us that they were birds of passage, arriving in Italy in autumn, and quitting it in the spring.

These birds, whose flesh is esteemed such a delicacy, are easily caught with bird-lime in the subsequent manner. The fowler must endeavour to kill two or three with a gun; then he must tie one or two of them to the higher branches of some bushy tree, in such a manner that they may seem alive and perched there; after this, he must prepare two or three hundred twigs, covering them well with the water bird-lime, made warm for that purpose; then taking a birchen bough, and on it placing all the twigs, he must tie the whole fast to the tree where the dead game is suspended. Having observed to fix this line in a place where Field-Fares usually resort to feed in the morning, two or three dozen may sometimes be secured at once.

FIELD-FARE, PYED. This curious species was

accidentally shot among a flock of common Field-Fares; and is but little known. The bill is yellow; the head and neck are white, spotted with lead-colour and black; and there is a yellow spot or space on the fore-part of the neck, round which are several little dark spots or shades. The back is a darkish brown; the rump is more pale; and the middle of the breast is a brownish yellow, interspersed with a variety of transverse black lines. The quill-feathers of the wings are of a dusky colour; but the exterior edges, as well as the edges of the scapular feathers, are white. The belly and thighs are white, spotted with black; the tail and claws are also black; and the feet are of a dusky brown hue.

FIG INSECT. An English appellation for the faux-puceron of Reaumur. These insects, when at their full growth, are each about the bigness of the head of a large pin; but among them are usually found several which are smaller, down to such as are scarcely perceptible by the naked eye. They are found in vast numbers on the backs or undersides of the leaves of the fig-tree; but they are never seen in clusters like the pucerons.

The body and breast of this insect are green; and the cases of the wings are white and hairy. It has two antennæ or horns, which it can exert at pleasure; but they are usually lodged under the furrows of the wings, and consequently not perceptible till the animal is turned on it's back: the head also is incurvated; and the eyes seem directed to look only at objects placed beneath them. It has six legs; and a small trunk issuing from the extremity of the head, of a lively green colour, and terminated by a sharp point: this trunk has a fine brown hair-like filament, which the insect protrudes at pleasure, and which seems to be an organ destined to convey into the body the juices extravasated by the wounds and the suction of the trunk.

This creature usually remains perfectly motionless on the leaf on which it is found; but has this peculiarity in it's position, that it's head always rests on one of the ribs of the leaf, and it's body on the plain part, by which means the anterior part of the head is raised above the surface of the plain part of the leaf; and the creature can move it's trunk about at pleasure, and fix it into different parts of the leaf, while it's body continues inactive.

These insects frequently change their skins during their growth; and, in the months of May and June, they all become winged. They afford a peculiar species of four-winged fly, remarkable for hopping; but as it's posterior legs are not much longer than the rest, it's leaps are but short. The body of this fly is green; the wings are bordered with yellow; and the legs are white. The trunk is of the same nature with that in it's original state, and with this it continues to suck the juices of the leaves of the fig-tree in the same manner as it did before it's transformation.

The manner of propagation in these insects is not certainly known. The pucerons, to which they approach nearer in figure than to any other animals, on dissection, shew young ones inclosed: but these, in whatever state they are examined, never exhibit any such appearance, not so much as eggs being found in them. It should therefore seem that their eggs are too minute for our inspection; but that they are oviparous, not viviparous animals.

FIG-SHELL. See **DOLIUM.**

FIGWORT-WORM. An insect which feeds on the leaves of the scrophularia, or fig-wort, usually esteemed a caterpillar; but which, in fact, is one of those insects called fausse-chenilles by the French.

FILANDERS. A genus of minute worms, which are found in the throat, the heart, the liver, and the lungs of the hawk; and by which that bird is greatly incommoded.

These Filanders, or vermiculi, are of four kinds, according to the part of the animal they infest. The first are in the gorge or throat; the second are in the belly; the third are in the reins; and the fourth are called needles, on account of their fineness. As these worms are very restless, the bird frequently endeavours to vomit them up; and, in the action of opening its bill, they may easily be perceived. From the throat, they ascend to the larynx and brain; and, finally, spread over the whole body. Bad food generally breeds these insects; and they are most effectually eradicated by making the bird swallow a clove of garlic.

FILE SHELL-FISH. A name sometimes given to the pholas. See **PHOLAS.**

FIN-FISH, the balæna physalis of Linnæus. A species of whale distinguished from the common fish of that name by a fin on the back, placed very low, and near the tail.

The length of this fish is equal to that of the common whale, but the body is much more slender. It is furnished with whale-bone in the upper jaw; but, being short and knotty, it is not much esteemed. The blubber also on the body of this kind is very inconsiderable; which circumstances, added to its extreme fierceness and agility, render the capture very dangerous and insignificant. However, the natives of Greenland hold it in much esteem, as it affords a great quantity of flesh very agreeable to their palates. The lips are brown, and resemble a twisted rope; and the spout-hole appears as if it were split in the top of its head, through which it blows water with great violence to an amazing height.

Some authors conjecture this to have been the physeter, or blowing-whale, of Oppian, Ælian, and Pliny: but, since those writers have left no particular description of it, we cannot pretend to judge on what grounds this opinion is formed, as all whales possess the faculty of blowing or spouting out water.

FINCH. A genus of birds with acute pointed, conical, hard bills; of which there are numerous species.

FINCH, BULL. See **BULL-FINCH.**

FINCH, GOLD. See **GOLD-FINCH.**

FINCH, GREEN. See **GREEN-FINCH.**

FINCH, CHAFF. See **CHAFF-FINCH.**

FINCH, GREY. This species is a native of the East Indies; and in size, shape, and manners, bears a strong resemblance to the common linnet. The bill is of a dark ash-colour; and the eyes are black. Round the base of the lower chap of the bill is a little whiteness, which extends itself under the eyes. The breast, belly, and the whole under side, are of a very light blueish ash-colour; but the top of the head, and the upper side of the neck and back, are of a dark cinereous. The rump, and coverts of the upper side of the tail, are of a very light ash; and the upper sides of the wings are dusky, except that the edges of the feathers are of a light ash. The greater quills are dusky at their tips, and white at their bottoms, which forms a

white spot on each wing; and the legs, feet, and claws, are of a dark flesh-colour.

FINCH, BLUE-BELLIED. This bird is four inches and a half in length; the bill is shaped like that of the goldfinch, and of a dirty flesh-colour; the top of the head, the upper side of the neck, and the back and wings, are of an ash-coloured brown, inclining to purple; the sides of the head quite round the eyes, the throat, breast, belly, rump, tail, and covert-feathers above and below, are all of a fine light blue or sky-colour; and the legs, feet, and claws, are brown. This bird is a native of Angola, in Africa; and is called, by the Portuguese settlers, azulinha.

FINCH, PURPLE, OF CATESBY. This beautiful bird has a white belly; and the rest of the body is of a deep violet-colour, except the tail, which is brown about an inch from its extremity. The wings are somewhat deeper than the rest of the body; and the feet are grey.

FINCH, BAHAMA, OF CATESBY. This variety has a black head, breast, and back; a white streak above and below each eye; and a yellow spot under the bill. The breast and belly are orange-coloured; the upper part of the neck and rump are of a dark red; the wings and tail are brown mixed with white; and the feet are of a lead-colour.

FINCH, PAINTED, OF EDWARDS. The bill of this bird is short, thick at the base, terminating in a point, and of a dusky colour; the eyes are hazel-coloured; the head and the hinder part of the neck are of a most beautiful blue; and the throat and breast are red, till the red gradually dissolves into an orange colour on the belly. The back is of a light yellow green; the rump or covert-feathers of the tail are red; the wings and tail are of a blueish green above, and ash-coloured beneath; and the legs and feet are flesh-coloured.

The hen of this beautiful species is entirely of a parrot green colour, except the under side, which has a considerable tinge of yellow.

FINCH, COLLARED. This bird has a pretty strong black bill; and the head is also black, except a space round the eyes and the base of the bill, which is white; the throat is also white; a line of the same colour passes from the throat all round the neck, forming a kind of collar; and on the lower part of the neck before is a black bar, which more than half encompasses the neck. The back and tail are of a dark ash-coloured brown; the covert-feathers of the latter are somewhat lighter; the wing-feathers have black centres, and their borders are of a bright reddish brown; the greater quills are black; the breast, belly, and thighs, are white, shaded with a faint orange-colour; and the legs and feet are dusky.

FINCH, BRAZILIAN, RED AND BLUE. The bill of this species is a very fine red; the feathers round the upper part of the bill and the sides of the head are of a fine purple or blossom-colour; the eyes are dark, but the surrounding skin is of a fine scarlet colour; and between the bill and the eyes there is a dusky line. The throat, immediately beneath the bill, is black; the top of the head, the neck, back, covert-feathers of the wings, breast, and belly down to the thighs, are of a dark dusky red; the quills of the wings are dusky; and the lower part of the back, the belly, and the covert-feathers both above and below the tail, are of a very fine blue. The tail is pretty long, and black; the middle feather is the longest, and the side-feathers gradually become shorter. The legs and feet are of

of a darkish flesh-colour. This curious bird is a native of Brazil.

FINCH, RED-BREADED, LONG-TAILED. This singular species has a short thick bill of a blueish colour; the whole head, and the throat as low as the breast, are blackish; the back, wings, and tail, are also black; but the edges of the greater wing-feathers appear a little whitish. The tail-feathers, which are wholly black, are about thirteen inches and a half long, and three-quarters of an inch wide near the rump, decreasing gradually to less than a quarter of an inch at their tips. The breast is of a full deep orange-colour; the hinder part of the neck is somewhat lighter; the belly and thighs are white; the lower belly, and the covert-feathers under the tail, are dusky; and the legs, feet, and claws, are of a flesh-colour.

But the most extraordinary circumstance attending this bird is, that it changes its colour, and has no long feathers in its tail for upwards of six months in the year. About the beginning of November, it sheds its tail, and molts its feathers; when its colours totally alter; the head becomes black and white streaked; the breast, back, and covert-feathers of the wings, turn to a reddish brown spotted with dusky; the greater quills and tail-feathers, to a blackish brown; and the whole belly, thighs, and coverts, to white. In this state it continues during the winter; but at the beginning of summer it molts again, when the long feathers of the tail begin to shoot out; and towards the latter end of June, or the beginning of July at farthest, it resumes its gayest dress.

This account, however improbable it may appear, is given by the ingenious Edwards; who informs us, that he carefully observed all the above changes in a live specimen at London.

FINGER-SHELL. An appellation given to a species of marine shell brought from the East Indies, and so called from its resemblance to the human finger. There are several species.

FINGER-SHELL, RED. This variety is about three inches long, and of the thickness of a man's finger. The surface is smooth, except towards one end, where there are a few furrows. It is open at both extremities; and the colour is a fine variegated red, from the strongest damask rose-colour to the faintest carnation.

FINGER-SHELL, CROOKED. This species, which is variegated with brown and blue, is about six inches long, three-quarters of an inch broad, and incurvated after the manner of a bow. The surface is smooth and glossy; but the extremities of many broken plates are perceptible on it, and it is of a pearly white internally.

FINGER-SHELL, BROWN AND WHITE. This shell is slender and straight, about three inches long, and near a third of an inch in diameter. It is open at both ends; and the surface, though very glossy, is somewhat irregular. The general colour is an olive brown, variegated in some places with white; and the interior surface is entirely white.

FINGER-SHELL, VIOLET-COLOURED. This species is four inches long, nearly half an inch in diameter, and quite open at both ends. It is very thin and brittle; the surface is irregular; and the colour is a fine blueish purple, or violet.

FINGERY. Another name for the fish called the branlin.

FINNIKIN. A particular species of pigeon, called by Moore *columba in gyrum flectens*. Its shape and size resemble those of the common pigeon. The crown of the head is mottled; and on

its hinder part rises a crown, which running down the neck, bears some similitude to a horse's mane. The colour of these birds is either black or a pyed blue; and they receive their name from the very singular manner in which the male strives to recommend himself to the notice of the female.

FIRE-FLAIRE. A fish of the ray kind, called also *pastinacha marina*, which seems to be the dread of even the boldest and most experienced fishermen. Nature has armed this animal with a barbed weapon proceeding from the tail, about five inches in length; concerning the tremendous effects of which, many astonishing fables have been handed down to us by Pliny, Ælian, and Appian. These naturalists ascribe to it a kind of venom which affects even the inanimate creation; trees touched by it instantly lose their verdure; and rocks themselves are represented as unable to resist this potent poison. The enchantress Circe is said to have armed her son with a spear headed with the spine of this fish, as the most irresistible weapon she could supply. Indeed, it is unquestionable, that darts and spears, in very early ages, were headed with this bone instead of iron. The Americans head their arrows with the bones of fishes to this very day; and, from their hardness and sharpness, they are no contemptible weapons. But that the spine of the Fire-Flaire is possessed of the deleterious qualities ascribed to it, we have every reason to doubt; though some men of high reputation in the literary world, and the whole tribe of fishermen, contend for its venomous effects. In fact, it is capable of inflicting a very terrible wound, attended with dangerous symptoms; but it certainly cannot be possessed of any poison, as the spine has no sheath to preserve the supposed venom on its surface, and the animal is destitute of glands, which would be necessary to separate the noxious fluid. Besides this, all those animals which are furnished with envenomed stings or fangs, seem to have them strongly connected with their preservation and existence; and should they be amputated, or even injured, the creatures themselves would speedily languish and die. But the case is far otherwise with respect to the spine of the Fire-Flaire, which is fixed to the tail like a quill, and annually shed in the same manner: it may, indeed, be necessary for the creature's defence, but by no means for its existence.

Wounds inflicted by the tails of animals carry something terrible in the idea; and hence fear may have added poison to the pain, and conjured up imaginary dangers. The negroes universally believe that the sting of this creature is poisonous, but they never die of the wound; for, on opening the fish, and applying it to the part affected, it produces a speedy cure.

FIRE-FLIES. A genus of Flies which exhibit a luminous appearance in the night-time. Of these various species are found in different quarters of the globe.

FIRE-FLIES, EAST INDIAN. These Flies are each about an inch broad, and as much in length. The head, which is brown, has two horns or feelers; and the neck is red. They have four wings; the uppermost of which are brown and hard, and the under soft: the shining substance is contained in a black bag situated on their backs, which is hid with their wings, except when in motion. During the rainy season, prodigious numbers of them swarm among the trees, on the blossoms of which they principally feed.

FIRE-FLIES, WEST INDIAN. According to
4 E Pere

Pere du Tertre, these insects resemble living stars; of which such immense numbers appear during the night, that the air seems full of them. They have not any luminous appearance in the day-time, and therefore are little noticed by those who are ignorant of their qualities. They have something of the appearance of dirty beetles; and delight to frequent places where rotten wood is found, till about sun-set, when they fly abroad, and appear like so many lighted tapers carried round the woods by invisible hands. They pursue the light of a candle, or any other luminous object, with so much ardour, that they often perish in the flame.

The same gentleman gravely informs us, that the poor Popish clergy, when in want of candles or oil, catch one of these flies, by the light of which they read their matins with as much facility as with a lamp. When alive, and in full vigour, a flame seems to proceed from all parts of their bodies; but, when they become sick, it grows weak; and, after death, it is quite extinguished.

FIRE-FLIES OF MARTINICO. These creatures, which are somewhat smaller than common flies, yield a sort of sparkling golden light extremely agreeable. This light resides in a sort of white substance, of which they are full; and, when inclined, they are capable of either concealing or disclosing it.

FIRE-FLIES OF GUIANA. These flies are of two kinds. The largest is upwards of an inch in length; and has a very large head, connected with the body by a joint of a particular structure, with which it sometimes makes a loud noise. It is furnished with two feelers, or horns; two wings; and six legs. Under it's belly lies a circular patch, which in the dark shines like a candle; and on each side of the head, near the eyes, is a prominent, globular, luminous body, somewhat larger than a mustard-seed. Each of these bodies resembles a rising star, emitting a bright powerful light; for two or three of these insects being put into a glass, afford sufficient light to read by. Even when the flies are dead, their bodies will still afford considerable light, though less vivid than before; and, if bruised or rubbed over the hands and face, they will exhibit a luminous appearance like phosphorus. These Flies, which are of a reddish brown colour, live in rotten trees in the day-time, and never venture abroad till the approach of night.

The other species is about half the size of the former; and their light proceeding from under their wings, it is only visible when they are elevated. The air is entirely filled with these insects in the night-time; but, like the rest of the kind, they are seldom visible during the day.

FISANELLE. A Venetian name for the species of water-fowl of the colymbus kind called by authors the colymbus major or great diver. It generally weighs about a pound: the feathers are downy, soft, and thick-set; the head and neck are brown; the back is blackish; the sides and belly are brownish; the breast is a silvery white; the wing-feathers are black and white; the toes are all connected by narrow membranes, but not webbed; and it is destitute of a tail.

FISCHERLIN. An appellation given by many of the northern nations to a small species of the larus or gull; called by Ray larus piscator; by Linnæus, larus minuta; and, in England, the lesser sea-swallow. It is somewhat less than the common black-bird. The bill is yellow, tipped with black; the forehead and cheeks are white;

from the eyes to the bill runs a black line; the wings are long and grey; the feet are short and yellow; the breast and belly are white, and of an exquisite gloss; the crown of the head is black; and the back is grey.

These birds are very common on some parts of the British coasts during the summer season; but being extremely delicate in their natures, they are unable to endure the inclemency of our winters, and therefore retire to warmer climates.

FISGURN. A German fish of the shape of the lamprey. See **MISGURN.**

FISH, BLACK, OF ALEPPO. Dr. Ruffel, who describes this fish in his History of Aleppo, says that it resembles the silurus Rondeletii in shape; and, like it, has no scales. The head and back are black; the lateral line extends quite from the head to the tail; and, below it, the colour generally changes to a dark purple. The under part of the head is also of the same colour. The head is flat; and the body is round, except near the tail, where it becomes somewhat depressed. The mouth is not so large in proportion as that of the silurus; but, in it's structure, it entirely agrees with the description of that fish. A small cirrus rises on each side from the edge of the nostril; two others of greater dimensions proceed from the angles of the mouth; and there are also four more on the lower lip. The eyes are situated near the corner of the mouth; and there are four branchiæ on each side, with a double row of six points. Near the branchiæ there are two fins, composed of seven radii; to the anterior part of which a pretty strong prickly bone is united. Above the anus are two small fins; a long one extends from under the anus to the tail, and another from the neck along the back; neither of which join with the tail.

This fish is caught in the River Orontes, and in the stagnant waters in it's vicinity; and, from November to March, the markets of Aleppo are plentifully supplied with it. The flesh is as red as beef, rank-tasted, and deemed unwholesome; but, for want of better fare, it is much used.

FISHER. See **SABLE.**

FISHES. In the Linnæan system, the fourth class of animals, including four orders; namely, apodes, jugulares, thoracica, and abdominales; which comprehend forty-seven genera, and four hundred species. However, the new Artedean system divides Fishes into five distinct orders; the malacopterygii, or soft-finned Fish; the acanthopterygii, or prickly-finned Fish; the branchiostegi, or Fishes without bones in the membranes over the gills; the chondropterygii, or Fishes with cartilaginous rays in the fins; and the plagiuri, or Fishes whose tails are placed horizontally.

The ocean being the great receptacle for Fishes, some have imagined that all the varieties are naturally of that salt element, and that they have only accidentally migrated into fresh water. A few still swim up rivers, in order to deposit their spawn; but the great body of Fishes keep at sea, and are incapable of existing in fresh water. In that extensive and inexorable abode, millions reside, whose manners, and whose very form, are wholly unknown. The curiosity of mankind, indeed, has drawn some from their depths, and his wants many more: with the figures of these at least he is acquainted; but, with regard to their pursuits, habits, times of gestation, and manner of parturition, these are all hid in the turbulent element which protects them.

The number of Fishes with whose names and figures we are in some measure acquainted, somewhat exceeds four hundred. Thus, to appearance indeed, the history of this class of nature is tolerably copious; but when we come to a more minute enquiry, it will be found, that of the greatest part of these we know but few qualities. Most Fishes present the same external form, sharp at either end, and swelling in the middle; which figure enables them with greater celerity and ease to traverse the fluid they are destined to inhabit. That peculiar shape which nature has given to most Fishes, human art has endeavoured to imitate in such vessels as are designed to sail with the greatest swiftness; but the progress of such machines is insignificant when compared to the rapidity of these animals. Any of the larger kind of Fishes overtake a ship in full sail with great ease, play round it without effort, and outstrip it at pleasure. All parts of their bodies seem adapted to accelerate their motion; their fins, their tails, and the undulation of their back-bones, assist progression; and it is to that flexibility of body which art can never give, that Fishes owe their superior velocity.

The fins are the chief instruments of motion in these animals; and those in some of them are more numerous than in others. A Fish, completely equipped for sailing, is furnished with two pairs, and three single fins, two above and one below. Thus qualified, it moves with the utmost rapidity, and undertakes voyages of a thousand leagues in a season. Those Fishes, however, that have the greatest number of fins, are not always the swiftest: the shark is esteemed one of the most active swimmers, yet it wants the ventral, or belly-fins; and the haddock, which it always outstrips, is completely fitted for motion.

Besides assisting the Fish in its progression, the fins are necessary in rising or sinking, in turning, or even leaping out of the water. The pectoral fins, like oars, serve to push the creature forward: these are placed at some distance behind the opening of the gills; and are generally large and strong, answering the same purposes to a Fish in the water, that wings do to a bird in the air. By the continued motion of these fins, the Flying-Fish sometimes rises out of the water, and flies above an hundred yards, till, wearied with its exertions, it drops again into its native element. The pectoral fins serve also to balance the head of the Fish, when too large for the body, and to keep it from falling prone to the bottom; as is the case with large-headed Fish, when the pectoral fins are removed. The ventral fins are placed under the belly, towards the lower part of the body; and, whatever may be the situation of the Fish, these are always seen flat on the water, and rather to raise or depress the animal than to forward its progressive motion. The dorsal fin is situated along the ridge of the back; and not only keeps the Fish in equilibrium, but also assists its velocity. Many Fishes, indeed, are destitute of this appendage; but it is very large in all flat Fish, the pectoral fins of which are proportionably smaller. The anal fin occupies that part of the creature which lies between the anus and the tail, and this serves to keep the Fish in its upright or vertical situation. But the tail, which in some Fishes is horizontal, and in others perpendicular, seems to be the grand instrument of motion; the fins being all subservient to it, and only giving direction to its powerful im-

petus, by which the Fish seems to dart forwards with so great velocity.

If any Fish is put into a large vessel filled with water, these positions will be easily illustrated. The animal, in a state of repose, spreads all its fins, and seems to rest on its pectoral and ventral fins near the bottom. If the Fish folds up either of its pectoral fins, (a faculty which it possesses) it immediately inclines to the same side; when it is desirous of a retrograde motion, striking with the pectoral fins in a contrary direction effectually produces it; and when it desires to turn, a blow from the tail sends it about; but if the tail strikes both ways, then the motion is progressive. In pursuance of these observations, if the dorsal and ventral fins be cut off, the Fish reels to the right and left, and endeavours to supply its loss by keeping the rest of its fins in unceasing action. If the right pectoral fin be amputated, the animal inclines to that side; if the ventral fin on the same side be removed, then it loses its equilibrium entirely; but when the tail is cut off, the Fish loses all motion, and yields itself to the impulse of the water.

Hence it appears, that each of those instruments has a peculiar use assigned it; but, at the same time, that they all conspire to assist each other's motions. It is certain, however, that the number, the size, and the situation of the fins, seem rather to correspond with the animal's figure, than entirely to answer the purposes of promoting its speed. If the head of the Fish is large and heavy, the pectoral fins are also large, and placed forwards, to prevent its oversetting; but if the head is small, sharp-pointed, and not too heavy for the tail, the pectoral fins are likewise small, and the Fish is totally destitute of the ventral.

As teraqueous animals are generally furnished with coverings to keep off the injuries of the weather, so the inhabitants of the water are covered with a slimy glutinous matter, which, like a sheath, defends their bodies from the immediate contact of the surrounding fluid, and assists them in their easy progress through the water. Beneath this, in many kinds, is found a strong covering of scales, which, like a coat of mail, proves a most powerful defence; and under that, before we come to the muscular parts of the body, an oily substance is lodged, which supplies the requisite warmth and vigour.

Thus protected, and fitted for motion in its native element, the Fish seems as well furnished with the means of happiness as quadrupeds or birds; but if we more accurately inspect its faculties, we shall find it much their inferior. The sense of touching, which birds and beasts in some degree enjoy, can be but very imperfectly felt by the Fish, wrapped up in its own coat of mail. The sense of smelling, indeed, so exquisite among beasts, and a little known among birds, is imparted to Fishes but in a very limited degree. It is true, that all Fishes have one or more nostrils; and even those which have not the apertures perceptible without, have notwithstanding the proper olfactory nerves within. But as air is the only known medium for the distribution of odours, it cannot be supposed that these animals, residing in water, can possess any power of being affected by them. If they have any perception of smells, it must be in the same manner in which the human species distinguishes by their tastes; and it is probable that the olfactory membrane in Fishes supplies the place of a discriminating

a discriminating palate: by this they judge of substances that, first tincturing the waters with their vapours, are thus conveyed to the nostrils of the Fish, and probably produce some kind of sensation.

As to tasting, it seems very defective among Fishes; the palate of most of them is hard and bony, and consequently incapable of the powers of relishing different substances. This sense among quadrupeds, who possess it in a moderate degree, arises from the soft pliancy of the organ, and the delicacy of the skin which covers the instruments of tasting; and in them it may be considered as a more perfect and delicate kind of feeling: but, in the bony palates of Fishes, all powers of distinguishing being wanting, they frequently swallow the fisherman's plummet with as much avidity as his bait.

The sense of hearing in Fishes is still more imperfect, even if it exists at all. Certain it is, that anatomists have not been able to discover, except in the whale kind, the smallest traces of any organs of sound about the heads of Fishes. Indeed, in the centre of the brains of some of these animals are a few little bones; but their number and situation seem entirely accidental. Klein, however, supposes them to constitute the organs of hearing; but if we consider their perfect dissimilitude to those bones which serve for hearing in other animals, we shall be little inclined to adopt his opinion. The greatest number of Fishes are entirely destitute of those bones; some have them in small numbers, and others in abundance; yet neither testify any excellence or defect in hearing. To what purpose, indeed, should this sense be given to animals which are incapable of making themselves heard? they have no voice to communicate with each other; and, consequently, auditory organs would be superfluous. Mr. Gowan, who kept some gold Fishes in a vase, informs us that, whatever noise he made, he could not disturb them. He shouted as loud as possible, putting a piece of paper between his mouth and the water, to prevent the vibrations from affecting the surface, and the Fishes seemed still insensible; but when the paper was removed, and the sound had it's full play on the water, the animals seemed instantly to feel the change, and shrunk to the bottom. From this, and many other experiments, it is pretty obvious, that Fishes are as deaf as they are mute; and that when they appear to be alarmed at any noise, it is only from the vibrations of sound affecting the water.

Fishes are in a tolerable degree possessed of the sense of seeing; and yet, if we compare it with that of other animals, even this appears obscure. The eyes of most Fishes are covered with the same transparent skin that overspreads the rest of the head; which nature seems to have given them as a defence in the water, they being totally destitute of eye-lids. The crystalline humour, which in quadrupeds is flat, in Fishes is perfectly round, or sometimes ovated: hence it is evident, that these animals are extremely short-sighted; and that, even in the water, they are incapable of perceiving objects at a any considerable distance; which might be easily ascertained, by comparing the refraction of bodies in the water with that formed by a spherical lens.

From this short survey of the senses of Fishes, it appears sufficiently obvious, that this class of animals are far behind quadrupeds in their sensations, and, consequently, in their enjoyments. Nature

seems to have fitted them with appetites and powers of an inferior kind; and formed them for a sort of passive existence in the heavy element to which they are consigned. To preserve their own existence, and to continue it to their posterity, fill up the whole circle of their pursuits and enjoyments; and to these they seem impelled rather by necessity than choice. Their senses are incapable of making any distinctions; and they move forwards in pursuit of whatever they can swallow, conquer, or enjoy.

A craving desire of food seems to give the ruling impulse to all their motions. This appetite impels them to encounter every danger; and to their rapacity no bounds appear prescribed. Even when taken out of the water, and almost expiring, they greedily swallow the very bait which lured them to destruction. Their digestive powers seem, in some measure, to increase with the quantity of food they consume; and a single pike has been known to devour an hundred roaches in three days. The amazing digestive faculties in the cold maws of Fishes have justly excited the curiosity of philosophers; and have effectually overturned the systems of those who maintain that the heat of the stomach is a sufficient instrument for digestion. The truth seems to be, as some experiments of the late eminent Dr. Hunter evince, that there is a power of animal assimilation lodged in the stomachs of all creatures, which we can neither describe nor define, converting the substances they swallow into a fluid adapted for their own peculiar support. This is effected neither by trituration, by warmth, by motion, by a dissolving fluid, nor by their united efforts; but by some principle in the stomach yet unknown, which acts in a manner very different from all kinds of artificial maceration. The food taken into the stomach or maw is often seen, though nearly digested, still to retain it's original form; and, in fact, is ready for a total dissolution, while to the eye it appears yet untouched by the force of the digestive powers.

But though the appetites of Fishes are insatiable, no other animals can endure the want of food for so long a time. Gold and silver Fishes, which are kept in vases, often live for months without any apparent sustenance; and whether they feed on aquatic insects too minute for observation, or whether they subsist on water only, is not sufficiently ascertained. Even the pike, one of the most voracious of Fishes, will exist in a pond wholly by itself.

Fishes that have small mouths feed on worms, and the spawn of their own tribe; but those which have wider mouths, seek larger prey. The largest-mouthed Fishes pursue almost every thing which has life; and they often meet each other in fierce opposition. Indeed, the life of a Fish, from the smallest to the greatest, is but one continual scene of hostility, violence, and evasion. The smaller fry, sensible of their impotence, wisely retire into those shallows where the greater species are unable to pursue them; there they become invaders in their turn, and live on the spawn of other Fish which they find floating on the surface of the water. Yet even in the shallows they are beset with dangers: the muscle, the oyster, and the scallop, lie in ambush at the bottom, with their shells open to receive the inadvertent wanderers; and, shutting them up in these prisons, prey upon them at leisure.

Nor is the pursuit of Fishes, like that of land animals, confined to a single region, or to a single effort:

single effort: shoals of one species follow those of another through vast tracts of ocean, from the vicinity of the pole down to the equator. The cod pursues the whiting from the banks of Newfoundland, to the southern shores of Spain; and in the same manner, the cachalot, or blunt-headed whale, pursues the shoals of herrings, and swallows thousands at a gulp.

This is very probably one cause of the annual migration of Fishes from one part of the ocean to another: but there are other motives which unite in causing this; Fishes may be induced to change the place of their residence for one more congenial to their constitutions, or better adapted to depositing their spawn. It is worthy of observation, that Fishes are averse to cold waters, and generally frequent those places where it is warmest. In summer, they abound in the shallows near the shore, where the sun has power to warm the water to the bottom; but, in winter, they frequent the greatest depths of the sea, where the cold of the atmosphere is not sufficiently penetrating to reach them. Fresh-water Fishes are often seen dead after severe frosts, which have been killed by the severity of the cold, or excluded from the benefit of air by the ice.

Though all the various species of Fish live in the water, yet they all require the assistance of air. Those of the whale kind breathe the air like the human race, and rise to the surface every two or three minutes for a fresh inspiration; and those which continue entirely under water must be supplied with air, otherwise they will expire in a very short time. When the ice covers the whole surface of a pond, and thus keeps off the air from the subjacent fluid, we sometimes find all the Fish are destroyed. If a hole be made in the ice, the Fish will be seen flocking to that part, in order to receive the benefit of a fresh supply of the admitted air. Should a carp in a large vase of water be placed under an air-pump, and then deprived of it's air, during the operation a number of bubbles appear on the Fish's body; soon after, the animal begins to breathe more frequently, and with greater difficulty; it then rises to the surface, in order to obtain more air; the bubbles on it begin to disappear; and the belly, which before was inflated, becomes on a sudden sunk, and the animal expires in convulsions at the bottom.

Thus air seems essentially necessary to all animals; yet nothing is more difficult to be accounted for than the manner in which Fishes obtain this requisite supply. When a Fish is in the water, it is easy to observe the motion of it's lips and gills, or at least of the bones on each side which cover them. This motion in the animal is unquestionably analagous to our breathing; but it is water and not air which the Fish actually sucks in, and spouts out through the gills at every motion. The manner in which it performs this operation is thus: the Fish first admits a quantity of water by the mouth, which is driven to the gills; these closing, keep the water so swallowed from returning by the mouth; while the bony covering of the gills prevents it from passing through them till the animal has extracted the proper quantity of air from the body of water thus imprisoned: then the bony covers opening, give it a free passage; by which means also the gills are again opened to admit a fresh quantity of water. Should the Fish be prevented from the free play of it's gills, or the bony covers be kept from action by any artificial confinement, the animal would soon fall into convulsions, and expire in a few minutes.

But though the general respiration of Fishes may be thus explained, the difficulty remains, to know how this air is managed which the Fish separates from the water. There seems no receptacle for containing it; the stomach, which is the principal cavity within the body, is too much filled with aliment for that purpose. There is, indeed, a pretty large cavity, called the air-bladder or swim; but philosophers have long destined this to a very different purpose. The use almost universally assigned to the air-bladder is to enable the Fish to rise or sink in the water at pleasure, according as that is dilated or compressed. The ancients, however, considered the air-bladder as a substitute for the lungs, and as a store-house of air from which the animal might supply it's necessities; and to this latter opinion several of the moderns seem to incline. We shall therefore exhibit both opinions, with their proper share of evidence, and leave the reader to follow the theory which seems most rational and satisfactory. The air-bladder is described as a bag filled with air, sometimes composed of one, sometimes of two, and sometimes of three divisions, situated towards the back of the Fish, and opening into the maw or gullet. Those who contend, that this bag is designed for raising or depressing the Fish in the water, build on the following experiment: a carp being put into the air-pump, and the air exhausted, the bladder expands itself to such a degree, that at last it bursts, and then the Fish sinks, and is ever after incapable of rising to the surface. The air-bladder likewise has been pricked and wounded to let out the air; and on this occasion likewise the Fish sunk, and rose no more. Hence it is inferred, that the use of the air-bladder must be by the voluntary inflation of the animal, to increase the surface of it's body; and thus diminishing it's specific gravity, to enable it to rise to the surface of the water, and keep there at pleasure. On the contrary, when the Fish is desirous to descend, it only exhausts this bladder of it's air; and the superficies of the Fish being thus diminished, it consequently sinks to the bottom.

Such is the account given of the use of the air-bladder; but it does not appear to rest on irrefragable evidence and accurate enquiry. In the first place, though nothing is more certain than that a carp will swell on being put into an air-pump, yet a mouse or a frog will do the same, and in these no air-bladder has ever been discovered. A carp will rise to the surface, but this only evinces that the animal wants air; and when it sinks, it is not from the laceration of the air-bladder, but from it's being totally exhausted of air. The Fish, indeed, after this experiment, will most probably continue to creep at the bottom; and so will all Fish which are sick and wounded, which must be the case with this after such an operation. Thus the previous facts prove nothing, but that when the Fish is killed in an air-pump, the air-bladder is found exhausted; and that must naturally and necessarily happen, for the drain of air by which the Fish is supplied in the natural way will infallibly oblige it to have recourse to all it's secret stores; and as there is an evident communication between the gullet and the air-bladder, the air which the latter contains will obviously be drawn away. Indeed, it is pretty clear, that the Fish can neither increase nor diminish the quantity of air in this bladder, according to it's own pleasure, any more than mankind can that which is contained in their stomachs. The animal has not one muscle for contracting or dilating

lating this organ; it's aperture is from the gullet; and what air is injected must remain there till the necessities, and not the will of the animal, call it forth as a supply.

However, to render this more evident, it is certain, that many Fish which continually crawl at the bottom, such as the eel and the flounder, are furnished with air-bladders; and many are without any bladder, such as the anchovy and the gudgeon, which swim at ease in any depth. Indeed, the number of Fish that want this organ seems alone a sufficient proof that it is not necessary for the purposes of swimming; and as the ventral fins, which in all Fishes lie flat on the water, seem fully sufficient to support them at all depths, they can have no absolute occasion for this internal apparatus to assist them in rising and sinking. It may, indeed, contribute to those purposes; but it is likewise very probable, that it has another and a more important use.

In every point of view in which we have regarded Fishes, they appear inferior to land animals; in the simplicity of their conformation, in their senses, and in their enjoyments: but, as some degree of compensation, they enjoy that humble existence a much longer term than any other class of animated nature. 'Most of the disorders incident to mankind,' says Bacon, 'arise from the changes and alterations of the atmosphere:' but Fishes reside in an element little liable to change; theirs is an uniform existence; their movements are without effort, and their lives without labour. Their bones, also, which are united by cartilages, admit of indefinite extension; and the different sizes of animals of the same kind among Fishes are very various. They still keep growing; their bodies, instead of experiencing the rigidity of age, which is the cause of natural decay in land animals, still continue increasing with fresh supplies; and as their bodies grow, the conduits of life furnish their stores in greater abundance. How long a Fish, which seems to have scarce any bounds prescribed to it's growth, continues to live, is not ascertained; perhaps the life of man would not be long enough to measure that of the smallest. Two methods, which are more ingenious than certain, have been devised for determining the age of Fishes: the one is by the circles of the scales; the other by the transverse section of the back-bone. By the first method, when the scale of a Fish is examined through a microscope, it will appear to consist of a number of circles, one within another: and, as in trees, their age is known by the number of circles in their transverse section; so, in Fishes, we discover their age by the number of circles in every scale, reckoning one ring for every year. Buffon found a carp, which, by this method of computation, appeared to be upwards of an hundred years old. However incredible this may appear, the accounts of several authors of veracity tend to confirm the discovery. Gesner mentions one of the same age; and Albertus brings an instance of one which existed upwards of double that period.

The skate and the ray, having no scales, their ages may be found by the other method; which is, by separating the joints of the back-bone, and then examining the number of rings, which the surface, where it was joined, exhibits.

For the certainty of these methods it is impossible to vouch; but we have every reason to believe the extraordinary age of some Fishes. But the fecundity of these animals is more extraordi-

nary than their longevity. Some produce their young alive, and others only eggs; the former are the least prolific, and yet they produce in amazing abundance. The viviparous blenny, for instance, produces two or three hundred at a time, which immediately divert themselves by playing round their parent. Those which exclude their progeny in eggs, and are obliged to leave them to chance, at the bottom of shallow water, or floating on the surface, where it is deeper, are much more prolific; their stock being in some measure proportioned to the danger there is of it's consumption. But few of these eggs, in comparison, produce animals, being devoured by Fishes and aquatic birds: still, however, the numbers that escape are sufficient to supply the deep with inhabitants, and to relieve the wants of a very considerable part of mankind.

The number that a single Fish is capable of producing is almost incredible. A single cod is said to produce, in one season, as many of it's kind as there are inhabitants in England. Lewenhoeck assures us, that the cod spawns above nine millions of eggs in one season; and several other species have a proportional increase. But Mr. Harmer has lately pursued the investigation of this curious subject with much more accuracy than any of his predecessors, and has extended his enquiries to a greater variety of species than any other person. The method which he adopted was, that of weighing the whole spawn very exactly; he then took a piece weighing a certain number of grains, and carefully counted the eggs it contained; and by dividing the number of eggs by the number of grains, he found nearly how many eggs there were in one grain. His computation of the number of eggs extended no farther than to those which he could distinguish by the naked eye; though, by this limitation, he omitted many eggs discoverable by a microscope, which might justly have been thrown into the aggregate. The weights he used were avoirdupois, and he reckoned $437\frac{1}{2}$ grains to an ounce. The subsequent table exhibits the general result of his enquiries; the first column containing the number of Fishes which he examined; the second, their weight; the third, the weight of their spawn; the fourth, their fecundity; and the fifth, the season of the year when each species was examined. He has also added other columns, exhibiting the portion of spawn weighed, the number of eggs found in a grain, and the result of examining several varieties of the same species of Fishes of different weights, which may be found in the Philosophical Transactions, Vol. LVII.

Fishes.	Weight.		Weight of	Fecundity.	Time.
	Oz.	Dr.	Spawn.		
Carp - -	25	8	2571	203109	April 4.
Codfish -	-	-	12540	3686760	Dec. 23.
Flounder -	24	4	2200	1357400	Mar. 14.
Herring -	5	10	480	36960	Oct. 25.
Lobster -	36	0	1671	21699	Aug. 11.
Mackrel -	18	0	1223 $\frac{1}{2}$	546681	June 18.
Perch - -	8	9	765 $\frac{1}{2}$	28323	April 5.
Pike - -	56	4	5100 $\frac{1}{2}$	49304	April 25.
Prawn -	(127 gr.)	-	-	3806	May 12.
Roach -	10	6 $\frac{1}{2}$	361	81586	May 2.
Shrimp -	(39 gr.)	-	7	6807	May 3.
Smelt - -	2	0	149 $\frac{1}{2}$	38278	Feb. 21.
Soal - -	14	8	542 $\frac{1}{2}$	100362	June 13.
Tench -	40	0	-	383252	May 28.

With respect to the generation of Fishes, the general opinion is, that the female deposits her spawn or eggs; and that after this, the male ejects the sperm or semen on it as it lies in the water, by

by means of which it is fecundated. The want of the organs of generation in Fishes gives an apparent probability to this: but Linnaeus vehemently opposes it; affirming that there can be no possibility of the impregnation of the eggs of any animal out of it's own body.

For a confirmation of this, the general course of nature, not only in birds, quadrupeds, and insects, but even in the vegetable world, has been called in to his assistance, as proving that all impregnation is performed while the ova are in the body of the parent; and this great naturalist supplies the want of the organs of generation by a very strange process, affirming that the males eject their semen always some days before the females deposit their ova or spawn; and that the females swallowing this, it serves to impregnate their eggs. About the spawning season, he tells us, that he has often seen three or four females gathered about the male, and greedily snatching up into their mouths the semen he ejects: he particularly mentions some of the efoces, some peach, and some of the cyprini, in which he had observed that process. But Mr. Tull asserts, that he has frequently seen Fish in actual copulation; and that this is generally performed before the ova arrive at maturity.

All Fishes, except those of the whale kind, are destitute of those parental solitudes which so strongly mark the manners of the greatest part of terrestrial animals. When they have deposited their burdens, they leave their nascent progeny to provide for themselves. Fishes have different seasons for depositing their spawn; and this continues in it's egg state in proportion to the size of the animal. The young of the salmon, for instance, continues in the egg from the beginning of December till the beginning of April; the carp continues in the egg only about three weeks; and the little Gold-Fish of China is still more expeditiously produced. All these, when excluded, at first escape by their minuteness and agility. They rise, sink, and turn, much readier than grown fishes; and, when pursued, they fly for refuge to shallow water. But, with all these advantages, scarcely one in a thousand survives the numerous perils of it's youth. The very male and female which produced them, forgetting all relationship at their departure, are equally dangerous and formidable with the rest,

Such is the general picture of these voracious and insensible creatures. But there are some Fishes, indeed, which possess finer organs, and higher sensations; that nurse their young with care and tenderness, and protect them from all injuries; of which kind are the cetaceous tribe. The cartilaginous kinds, or those which have gristles instead of bones, bring their young alive into the world; and, though incapable of nursing them, they defend them with activity and courage: but the spinous or bony kinds leave their spawn without any protection, being satisfied with their mere production.

Many volumes have been written on the subject of catching Fishes, and of rendering them subservient to the ends of luxury; but such subjects do not properly fall under the naturalist's illustration. Apicius is famous for having taught mankind to suffocate Fishes in Carthaginian pickle; and Quin, the comedian, for inventing a sauce for the doree: Mrs. Glasse is famous for her eel-pye; and Mr. Tull for his invention of splaying carp, to give it a finer flavour. In this manner, our cooks handle the subject; while physicians assure us, that Fishes

afford very little nourishment as food, and that they soon corrupt; that they are naturally cold and moist, and consequently produce juices of the same kind, which are inefficacious in strengthening the body; that they abound in a gross kind of oil and water; that they have few volatile particles, and are therefore less fit to be converted into the substance of our bodies. In this diversity of opinions, it is the most rational way for every person, to follow nature; to eat what experience proves to be agreeable to his constitution; and to leave it to doctors and cooks to dispute about the essential qualities of food, the means of promoting luxury, or repelling disease.

FITCHET. A name sometimes used to express the pole-cat, an animal of the weasel kind.

FIVE-FINGERED FISH. This species of fish, which is very common in the East Indian seas, receives it's name from five black spots on each side, resembling the prints of the fingers. It is about a foot and a half long; it's head is small; it's mouth is large; and it's colour is a shining blue mixed with purple. There are no scales on the body.

FLAIRS. An appellation given by some to the skate, a species of ray.

FLAMEO. A name given by some to a long anguilliform fish, a species of the tænia, called also cavagirol.

FLAMETTE. An appellation given by the French writers to a species of chamas, a shell-fish of the bivalve kind, whose shells are always in part open. This species is as hot to the palate as pepper.

FLAMINGO. A very beautiful and singular bird, whose general conformation and appetites refer it to the crane kind, though it is web-footed like the genus of anseres. Furnished with a longer neck and legs than any other of the crane kind, it seeks it's food by wading among waters; and only differs from them in the manner of seizing it's prey: for as the heron makes use of it's claws, the Flamingo only employs it's bill, which is strong, and well adapted for this purpose; while the claws are feeble and useless.

The Flamingo is a tall, bulky, and most beautiful bird. The body, which is of a vivid scarlet, is about the size of a swan; but the legs and neck are of such extraordinary dimensions, that when it stands erect, it is upwards of six feet high. The expansion of it's wings is five feet six inches, and it's length four feet eight inches. The head is round and small; the bill is about seven inches long, partly of a red colour, partly black, and crooked like a bow. The legs and thighs, which are not much thicker than a man's finger, are about two feet eight inches long; and the neck measures nearly three feet. The feet are weak; and the toes are united by membranes; but of what use these appendages are, does not appear, as the bird is never seen swimming, it's legs and thighs being sufficient to carry it into those depths where it's prey is to be found.

This extraordinary bird was once known on all the coasts of Europe; but is now chiefly found in America. It's magnitude, it's beauty, and the peculiar delicacy of it's flesh, when young, have afforded such incitements for it's destruction, that it has long since deserted the shores frequented by man, and taken refuge in countries where the want of population allows it to range in security. In those desert regions, the Flamingos live in a state

state of society, and under a polity which excites at once our veneration and wonder.

On the first discovery of America, and the coasts of Africa washed by the South Sea, the Europeans found Flamingos on several shores of either continent, gentle and unsuspicious of mankind. In those extensive solitudes, where they had fixed their abodes, they had long enjoyed security; and knew no enemies, but such as they could either evade or oppose. The negroes and native Americans possessed but few destructive arts for killing them at a distance; and when the birds perceived the arrows, they contrived a way to avoid them. But when the Europeans beheld such desirable prey, it was far otherwise. Unaccustomed to fire-arms, the Flamingos were lost in amazement, when they saw one of their companions fall; they neither tried to avoid their fate by flight nor cunning; and numbers were destroyed before the rest recovered from the consternation that seized them on the first attack. At present, however, the Flamingo is not only one of the most rare, but one of the shyest birds in the world, and the most difficult of approach. They chiefly frequent the most deserted and inhospitable shores, near salt-water lakes, and swampy islands. In the day-time, they come down to the banks of rivers; and at the approach of night, they often retire to the interior and more mountainous parts of the country. When they suffer themselves to be seen by mariners, they always appear drawn up in a long close line of two or three hundred together; and, according to Dampier, exhibit, at the distance of half a mile, the exact representation of a long brick wall. But when they seek for food, their rank is broken; yet not before they have stationed one of their number as a watch, whose sole employment is to observe and give the signal of danger while the rest are feeding. As soon as this faithful sentinel perceives the remotest appearance of danger, he screams with a voice as shrill as a trumpet, and instantly the whole band are on the wing. When feeding at ease, they are remarkably silent; but, when alarmed, they fill the whole air with intolerable screamings.

Hence it appears, that the Flamingos, having once experienced the tyranny of man, avoid him with the most cautious circumspection: however, this caution seems to originate in fear, and not in antipathy; for in some villages along the coast of Africa, Labat assures us, the Flamingos come in great numbers, and take up their residence among the natives. There they assemble by thousands, perched on the trees within, and in the vicinity of these villages; and the clamour they raise is so powerful, that it may be heard at the distance of a mile. The negroes are much attached to their society; and consider it as a gift from Heaven, and a protection from accidental calamities. The French who have been admitted to this part of the African coast, reluctantly behold such a quantity of game untouched, and rendered useless by ignorance and superstition; but they never venture in public to destroy those reputed sacred fowls, lest their lives should atone for their temerity. In their wild state, the Flamingos are sometimes shot by mariners; but their young, though they run excessively fast, are more frequently overtaken. Labat says, he has frequently caught them in nets extended round the places where they breed. When their long legs are entangled in the meshes, they are then unqualified to escape; nevertheless, they continue to combat with their destroyers, mak-

ing use of all those instruments of defence with which nature has supplied them. When taken old, they still retain their natural ferocity; they refuse all nourishment; and use their bills and claws on every opportunity to annoy their tyrants. The fowlers, therefore, finding it impossible to tame them, are compelled to destroy them; otherwise they pine and die, if left to themselves in captivity. Their flesh is black and hard; though, Dampier says, well-tasted; but that of the young ones is more agreeable to the eye than to the palate. However, of all other delicacies, the tongues of the Flamingos are most celebrated. A dish of these, says Dampier, is a feast for an emperor. In fact, the Roman emperors considered them as the highest luxury; and history informs us, that one of them procured fifteen hundred Flamingos tongues to be served up in a single dish. The tongue of this bird is certainly very large; but what peculiar flavour it may possess, we leave to be determined by the professors of epicurism. It is probable, that the beauty and the scarcity of the bird might be the first inducements for studious gluttony to fix on it's tongue as a dainty for the appetite.

When these birds migrate from one place to another, they repeat the sound *Tococo*, in a very vociferous manner; and hence the Canadian savages have given them that appellation. In their flight they appear to singular advantage, seeming as bright a red as a burning coal. Their manner of feeding is very particular: the bird thrusts down it's head, so that the upper convex side of the bill only touches the ground; and in this position the animal appears, as if it were standing on it's head. In this attitude it paddles and moves the bill about, seizing whatever fish or insect happens to come in it's way. For this purpose, the upper chap is notched at the edges, so that it can hold it's prey with superior security. Catesby, however, exhibits a different picture of these birds manner of feeding; for, according to him, they thus place their upper chaps undermost, and so work about, in order to pick up seeds from the bottom of the water, resembling millets: but as in picking up these seeds they necessarily take up great quantities of mud, their bills are ferrated in such a manner that the soil flows out while they swallow the grain.

The season of incubation depends greatly on the climate in which they reside: in North America they breed during our summer; and on the other side of the line they likewise chuse the most favourable season of the year. They build their nests in extensive marshes, and where they are least obnoxious to the danger of a surprize. The nest is not less curious than the animal which builds it; being raised from the surface of the water about a foot and a half, and formed of mud indurated by the sun, or the heat of the bird's body. It resembles a truncated cone in it's figure; and at the top it is excavated in the shape of the bird.

The female Flamingo, like all large fowls, lays but a small number of eggs. Her nest has seldom been found to contain more than two; and as her legs are immoderately long, she straddles on the nest, while they depend on each side into the water.

It is a long time before the young are able to fly; and when they are early caught, they are tamed with facility. In five or six days they become familiar, eat out of the hand, and drink salt-water in abundance. But though they are easily domesticated when young, they are not reared without the greatest

greatest difficulty, generally pining away for want of their natural supplies. While young, their colours are very different from those lively tints they acquire with age. During their first year, they are covered with whitish plumage, variegated with grey; in the second year, the whole body is white, with a few slight tints of scarlet, and the great covert-feathers of the wings are black; the third year equips the bird in all its destined beauty, the plumage of the whole body becoming like scarlet, except a few feathers in the wings, which still retain their fable hue. Of these beautiful plumes the savages fabricate a variety of ornaments; and the entire skins of these birds are sometimes made up into muffs by the Europeans. But since we have acquired the art of dyeing feathers of the brightest scarlet, the value of these has been much diminished.

FLAT-FISH. The fish so called is a native of the East Indian rivers. It is about a foot long; the mouth is wide; and the skin is smooth, and without scales. The colour of the body is silvery; and on the back is a small fin, with one on each side. Under the belly likewise is a single fin, which supplies the place of the tail. This fish is excellently flavoured, but so extremely full of bones, that it is little valued.

FLEA. A genus of the aptera class of insects, of a roundish compressed figure.

Few are unacquainted with the agility and blood-thirsty disposition of the Flea; of the caution with which it begins the attack; and the quickness with which it avoids the pursuit. This insect, which not only preys on man, but also on the dog, the cat, and various other animals, is found in every part of the world; but in some countries it is more plentiful and more troublesome than in others. In Italy and France its size is increased, but its bite is less severe than in England; and it would seem that its force increased with the coldness of the climate; and, though less prolific, that it became more predaceous.

When examined with a microscope, the Flea will be observed to have a small head, large eyes, and a roundish body. It has two short antennæ, or horns, composed of four joints; and between these lies its trunk, which it buries in the skin, and through it imbibes the blood in large quantities. Its body appears to be curiously ornamented with a suit of polished fable armour, neatly jointed, and beset with a multitude of sharp spines, almost like the quills of the porcupine. Its legs are six in number; the joints of which are so adapted, that it can fold them up one within each other; and, when it leaps, they all spring out, whereby its whole strength is exerted, and its body raised above two hundred times its own diameter.

The generation of this familiar vermin, which was first discovered by Signior Diacinto Cestone, affords something very curious. Fleas bring forth eggs or nits, which they deposit on animals that afford them a proper safeguard. These eggs being very round and smooth, usually slip down till they are detained by some inequalities on the cloaths or hairs where they are lodged; and from them are hatched certain white worms which feed on the scurfy substance of the cuticle, the downy matter collected in the piles of cloaths, or other similar substances. In the space of fourteen days they arrive at a tolerable size; become very lively and active; and, if disturbed, they suddenly roll themselves up in a ball. Soon after this, they begin to creep, like silk-worms, which have no legs;

and then they search out lurking-places, where they spin silken threads from their mouths, and with these they inclose themselves in small round bags or cases, of a snowy white colour internally, but dirty without. In this position they remain for a fortnight longer; after which they burst from their confinement perfectly formed, and leave their exuvie in the bags.

By keeping Fleas in a glass tube, corked at both ends, but so as to admit fresh air, their several actions may be observed, and particularly their mode of copulation, which is performed tail to tail; the female, which is considerably the largest, standing over the male.

The Flea may easily be dissected in a drop of water; and by this means the stomach and bowels, with their peristaltic motion, may be very clearly discovered. Lewenhoeck affirms, that he has seen innumerable animalcules, of a serpentine shape, in the semen masculinum of a Flea: be this as it may, it is certain that their testis, penis, with the veins and arteries, though minute beyond conception, are yet perfectly distinguishable.

Nothing, however, is more surprizing than the strength of this little insect. Had man an equal degree of power in proportion to his bulk, the history of Samson would be no longer miraculous. A Flea will draw a chain an hundred times heavier than itself; and, to compensate for this force, will eat ten times its own size of provision in a single day.

FLEA, WATER, ARBORESCENT. This insect, the monocolus of authors, is about the size of the common Flea; and appears to the sight, unassisted by the microscope, to have but one eye, whence it receives its classical name. However, the fact is, on account of the smallness of the head, both eyes seem united, being situated in the trunk of the insect, which is very small and sharp-pointed. Examined by the microscope, the structure of the eye seems to be reticulated, or formed like a net.

Insects of this kind, which are of a blood-red colour, are sometimes seen in such multitudes on the surfaces of stagnant waters, as totally to change their colour; and hence many fanciful people have concluded that they were turned into blood.

Swammerdam informs us, that a certain renowned professor of Leyden was for a time much astonished by an appearance of this kind. Being very intent on his studies, he heard a confused noise; of which, as it seemed to increase by degrees, he was desirous of discovering the cause by means of his servant; who, on his return, appeared almost petrified through fear, and told his master, in a tremulous voice, that all the waters of Leyden were turned into blood. On this the gentleman proceeded directly to the water thus discoloured, and poured some of it into a glass; and after viewing it attentively, he observed that it abounded with an infinite number of these little red insects, which had turned the whole fluid into that sanguineous colour.

This insect is particularly curious on account of the formation of its arms, and the motion it makes with them in the water. By means of these the little creature can move in a straight line, waving its arms as a bird does its wings in the air, sometimes upwards, at others downwards, sometimes to the right, and at others to the left; still, however, proceeding in one uniform and regular course. By striking the water with its arms, it can ascend with great velocity; and, by beating it in a different di-

rection, it can dive with equal facility. As these motions are very rapid, the little animal appears as if jumping in the water; its head always tending to the surface, and its tail stretched downwards.

The Water-Flea is produced from an egg, which, when excluded, is carried on the back of the female; and, soon after, is seen floating round her in the water. At first, it exhibits the appearance of a very small whitish insect, endued with a very nimble motion; and, except in colour, it undergoes no change, only continuing to grow larger and redder in proportion to its age.

These insects sometimes remain several days on the surface of the water; and, at other times, they are only seen at the bottom; but, whether at the bottom or the surface, they are constantly in motion. They shed their skins like most other insects; and these exuviae so exactly resemble the creatures themselves, that the slough may easily be mistaken for the animal.

FLESUS. An appellation used by some authors to express the flounder, the *passer fluviatilis* of naturalists in general.

FLITTER MOUSE. A name sometimes given to the common bat.

FLORUS. An appellation given by Aldrovandus, and some other naturalists, to the bird generally known in England by the name of the whinchat; a kind of the *cœnanthe*, or fallow-finch.

FLOUNDER; the *pleuronectes flesus* of Linnæus. This fish may be easily distinguished from any other of the same genus by a row of small sharp spines surrounding its upper sides, placed just at the junction of the fins with the body. The upper part of the body is of a pale brown colour, sometimes marked with a few obscure spots of dirty yellow; and the belly is white. A variety of this Flounder is sometimes found with the eyes and the lateral line on the left side; of which Linnæus makes a distinct species, called *pleuronectes passer*; but, as this fish differs from the common kind in no other respect, it does not seem reasonable to separate them.

The Flounder is a native of all parts of the British seas; and it even frequents those rivers at a considerable distance from the salt-water; for which reason some writers have termed it *passer fluviatilis*. In rivers, however, it never attains to any great size; but its flesh is reckoned sweeter than that of those Flounders which inhabit the sea. The weight of the largest of this species seldom exceeds six pounds.

FLOWER-ROOT WORM. A peculiar species of Fly-Worms which inhabit the bulbous roots of flowers. Towards the end of autumn, when the roots of narcissuses are taken out of the earth, each of them is very frequently found to contain a single worm, which eats and destroys them. Such roots as contain these pernicious lodgers may be easily known, by having small apertures in some parts of their surfaces, at which these destructive animalcules entered when small, and which probably serve them in a larger state for the purpose of respiration. The interior parts of these bulbs are always found rotten; and the inclosed Worms lie in a kind of brown dirt made by their own liquid excrements, mixed with the fragments of the roots which they have consumed.

These Worms undergo all their transformations in shells formed of their own skins, which are of the same ovated shapes with those of blue flesh-

flies, but considerably larger, and of a greyish colour. This, however, is not all the difference perceptible between those shells; for, on the anterior and superior parts of them are two horns which seem intended to convey the air into the corselet; the old stigmata, which served the creature in its Worm-state, being now obliterated. After having undergone all the necessary changes, the shell bursts open in the month of April, and emancipates the inclosed fly.

This fly has at first the appearance of an humble bee; and, without some degree of attention, they are not easily distinguished. It is covered with black, yellow, and reddish hairs, after the same manner as the common humble bees; but its antennæ, which are of the battledore fashion, plainly prove that it does not belong to the bee kind, even did not its having only two wings evince the contrary.

FLUDER, or SEA-FLUDDER. A water-fowl of the *colymbus* or diver kind, described by Gesner, and some other authors, under the title of *colymbus maximus*. It is nearly of the size of the goose, and moves very slowly either in the water, on land, or in the air. Its beak is long; its legs are very short; it has a shrill voice; and it dives to a prodigious depth. Its feet are webbed; its back is of a greyish colour; and its belly is white. It very nearly approaches to the northern *colymbus*, called the lumme, differing only in colour, which in birds is frequently found to be only an accidental variety.

FLUSHER. The common appellation for the lesser butcher-bird, called by authors the *lanius minor*, and by Aldrovandus *lanius tertius*. The beak is long, black, and a little hooked at the extremity; the mouth is internally of a yellow colour; and the tongue is jagged. The middle of the back and the smaller wing-feathers are a reddish brown; the head and rump are grey; a broad line passes on each side of the head, rising from the angle of the beak; the belly is white; the throat and breast are whitish with a reddish cast; the greater plumage of the wings is mottled with brown and black; and the legs and feet are a deep blueish black.

This bird builds in holly-bushes, and other similar situations. It lays six oblong eggs, white at the smaller end, and ornamented with a circle and reddish spots at the other. It is common in Germany, and in the northern parts of England. See **BUTCHER-BIRD**.

FLUTA. A name given by Gaza and some others to the common sparus, distinguished by Artedi by the appellation of the plain yellow sparus with a large annular black spot near the tail.

FLUTA is also a name given by Columella to the *muræna* of Aristotle; which in the Artedian system is distinguished under the name of the *muræna* without pectoral fins; a peculiarity evidently and obviously marking it from all others of the kind.

FLUVIATILES COCHLEÆ. An appellation given by naturalists to those species of shell-fish which are never found in salt-water. These, though much less numerous than sea-shells, are yet of a greater variety and beauty than is commonly supposed. Such as have already fallen under the examination of conchologists may be arranged under their proper genera, in the subsequent manner. The univalves comprehend two species of *patellæ*; one having a beak at the summit of the shell; and the other being destitute of this appendage,

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dage, and as smooth as the common patellæ or sea-limpets.

There are five species of limaces, or snails; there are three species of the fresh-water neritæ; there is one species of the trochus; there are three species of the turbo; seven of the buccina; four of the dolia, or conchæ globosæ; and four of the cornu ammonis.

Of the bivalve fresh-water shells, there are five species of the chamæ, and six of the muscle kind; and of the pecten kind there is only one species. Naturalists have not yet discovered a single species of the multivalve class.

To reduce the several species to their proper genera, is not very difficult, from a recollection of the characters of each genus of marine shells. The limpet is a flat shell, elevated into a sort of cone at the summit. In the snail kind, if the mouth be round, the shell is a true limax; when semicircular, the shell is a nerita; and, when oval or depressed, and the clavicle long, it is then a trochus. The turbo, or screw-shell, is known by its long and slender figure. The buccina are long-shaped, tailed, and narrow-mouthed; and the dolia are somewhat of a subglobose figure. The cornu ammonis and the umbilicated snail are often confounded together by those who observe only their external resemblance among fresh-water shells; but in reality they are sufficiently distinct, the cornu ammonis being externally marked with circular ridges, and divided internally into several separate cells, like the common fossil kinds; whereas the umbilicated snail is of an even external surface, and has only one internal cavity: the snail also has its mouth placed towards one side, and the cornu ammonis in the middle. The chamæ are known by their roundish figure, and the muscles by being oblong; and the pecten is distinguished by its ears and striæ.

FLY. A complete description of the various classes, genera, and species, of Flies, constitutes a very extensive branch of natural history. The number of the species of Flies perhaps exceeds even that of the butterfly; but Flies being generally very minute animals, less beautiful and less attractive, naturalists have not exerted their industry to reduce them to such determinate bounds as the former. However, the libellulæ and the cicadæ, in magnitude and beauty, exceed many of the butterfly tribe; and these have been observed with attention, and described with accuracy.

In their original state, many Flies are either concealed from our view, or detained among very nauseous substances: it is only in their winged state that they become agreeable objects of our researches; and it may be proper therefore to begin their general history in that stage, occasionally descending to an enumeration of their previous habits and natures, when the lights thrown on the subject are sufficiently clear to direct us.

It is generally believed, but certainly without foundation, that those minute Flies which we observe during the vernal season will live and grow larger as summer advances; but the fact is, Flies, like all other insects which undergo a metamorphosis, arrive at their full size as soon as they become denizens of the sky; and, having fluttered through their contracted lives, and made provision for posterity, they leave the stage of existence to another succession of animals.

The general and most obvious character of Flies, by which they are distinguished from other winged

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insects, is in being furnished with transparent wings, totally free from the farina or dust visible on those of butterflies; and in having no cases or covers for them. Thus, by this simple character of having transparent and naked wings, they are clearly distinguished from the butterfly, the beetle, the grasshopper, and other classes of winged insects.

The principal parts or members of which Flies are composed are, the head, the corselet, and the body. To the corselet the wings are appended; and in the body are contained the stomach, the intestines, the parts of generation, and a considerable part of the tracheæ. The head is usually united to the corselet by a very short neck, on which it can often turn as on a pivot. Some Flies indeed have, as it were, the rudiments of two corselets, one separated from the other; in which case, the first is usually very small, and to the second the wings are affixed. The corselet is the most prominent and rounded part of the insect; it is always possessed of the greatest strength, and is frequently the thickest: the Dragon-Flies, and some water-insects, are of the kind which have double corselets, or corselets divided into two.

The most obvious distinction for a classical arrangement of Flies, is drawn from the number of their wings; some having only two, and others four. Yet this plain and obvious division has not always been observed by writers on natural history; and some have even neglected to inform us what number of wings belonged to the species they were describing.

The first general division, therefore, of Flies, is into that of the two-winged and the four-winged kinds. A cursory view is generally sufficient to determine to which of those divisions a Fly belongs; but if we afterwards examine the insect with more attention, and consider the organs by which it receives its nourishment, it may be observed that some species are able to protrude this organ to a considerable distance from their heads; and that, when the Fly is in a state of rest, it is either folded up, shortened, convolved, or laid closely down; but, when the creature wants to use it, is unfolded, lengthened, extended, or elevated. Naturalists have given this organ the name of a trunk: but, in many species of Flies, this appendage is wanting; and such have only an aperture serving for a mouth, surrounded with lips and some other parts. Some of these mouths have nothing analogous to teeth about them; others, however, have teeth, saws, or grinders, placed externally, and moveable as in the caterpillar kinds, with which the Flies tear and destroy leaves, fruits, and flesh; and, lastly, there are also some Flies to which nature has allotted both a trunk and these organs.

These different characters give us very naturally the distinctions of four subordinate classes under the two former general ones. The first class contains those which are furnished with a trunk, but have no teeth or saws; the second comprehends those which have a mouth, without any apparent teeth; the third, those which have a mouth furnished with teeth; and the fourth, those which have both a trunk and teeth.

All the two-winged Flies belong to the two first of those classes: the great blue Fleh-Fly, the small Flies which frequent our houses, and the gnats, all being provided with trunks without teeth, belong to the first class; and the Spring-Fly so common in gardens, and a species of Fly resembling the

the gnat kind, and having a mouth without any teeth, belongs to the second class.

The four-winged Flies, which are extremely numerous, fill up the two remaining classes. All the bee kind have a trunk and two teeth; all the wasp kind have a mouth furnished with two teeth; and, besides these, there are several four-winged Flies which have the characters of the second class, particularly all the papilionaceous Flies, produced from water tæniæ, which have a mouth without any teeth. Several small four-winged Flies also belong to the first class; such as the flying pucerons, and the false pucerons, which have all trunks without teeth; and to this class likewise the cicadæ are properly referred.

A fifth class may likewise be established, but it only comprehends two known species of Flies; this is such whose heads perform the office of trunks. Flies of this kind have very long heads, terminating in a sort of beak, somewhat like the feathered tribe; but this beak has no aperture except at the extremity; nor can the Fly alter it's position without altering that of the whole head. At the end of this kind of trunk are placed the teeth, or other organs, with which the insect collects it's food. The scorpion Fly, a very beautiful creature, frequently seen skipping and leaping about flowers, affords a specimen of this kind.

Subordinate to these general classes, others are deduced, from whatever forms the most obvious and essential distinction between these little animals. The figure of the body often presents such distinctions; and from it three subordinate classes are formed under the five general ones: the first is composed of those Flies whose bodies are short and broad; the second, of those with long bodies; the third, of those whose bodies are fastened to the corselet only by a fine filament; and, under all these, the several genera are to be established from other inferior but constant and invariable marks, such as the manner in which they carry their wings, the figures of their antennæ, the position of their trunks, and other essential variations.

The bodies of Flies being extremely different from each other, even those whose general conformation refers them to the same class, are not without their distinctions, by which alone they may be made to establish subordinate genera. Among the Flies which have short or ellipsoide bodies, some are extremely flat and thin; such are those of the Flies produced from worms feeding on the pucerons; and others have the hinder part of the body incurvated in the form of a hook.

In Flies, the extremity of the body is usually smaller than the adjoining parts; but there is a variety found in the nests of swallows, the extremity of whose body is considerably the largest. However, not only the form of the body, but the differences in the filament, by which in many genera it is connected to the corselet, may furnish marks for the distinctions of the subordinate genera. The hinder part of the body may also furnish abundant matter of distinction. Those Flies which carry stings in their tails, have in that circumstance alone a sufficient distinction. But, exclusive of those which have stings, the females of several genera have organs placed in the extremities of their bodies, which serve as a kind of auger to pierce the body in which they are to deposit their eggs. Several of the female ichneumons are furnished with this kind of instrument; and there are others which have a long and sharp piercer, partly lodged un-

der the belly, or in the body; of which kind are the cicadæ, and many others. Nor is this the only provision which nature has afforded these creatures for their protection or defence; some have a ferrated organ behind; and others one or more long slender filaments, which in their form and structure have some resemblance to the antennæ. The genera of Flies may therefore very properly be distinguished by such appendages: the ephemérons, and many other species among the four-winged Flies, are furnished with them; and, among the two-winged kinds, the small Fly, which is the male gall insect, affords an example of them.

Those Flies which proceed from water-worms, according to their several species, present some varieties to the curious in the manner of their egress from their shells, when they quit the nymph state, in order to assume their last and most perfect form. The long water-worms, composed of many rings, and with funnel-fashioned tails, constructed with apertures for the admission of air, and surrounded with a multitude of hairs, retain in their shell-state so much of their original form, that they are not easily distinguishable. In each of these, the nymph occupies only a small part of the cavity; and, in many of them, the Fly is produced perfect in five or six days. At the expiration of this time, the nymph, having acquired it's full strength, begins to exhibit the first indications of life in attempting to obtain it's liberty. To accomplish this, nature has so provided for the inclosed Fly, that the head is but slightly connected to the second ring of the body; but the creature, in this state, not being lodged in that part of the worm, can make no efforts against it; all it's exertions are applied to force an aperture in the second ring, like that in the back of the caterpillar's skin when it is about to cast it's exuvix. For this purpose, the inclosed Fly inflates and swells it's head; and then thrusts out the bladder from it's anterior part, with which these Flies are provided, in this stage of their existence, on this very account. When this aperture is effected, the head of the worm is in some measure separated from the body; and the efforts of the Fly to push itself forward, finish that separation, and leave an opening of a proper size for the egress of the Fly.

The Flies produced from this species of worm are liable to considerable danger from the element which formerly nourished them; and they are as easily drowned as those produced from worms which spend their lives on dry land. These Flies, which are of the short-bodied kind, bear a strong affinity to the common great blue flesh-flies; they have fleshy trunks furnished with lips, and are destitute of teeth; but, though thus far the similarity is entire, the characteristic distinctions are sufficiently obvious. The first is, that the antennæ of this species are composed of granulated filaments; whereas those of the other are of the battledore kind: the wings of the flesh-fly are not crossed on the body; whereas those of this Fly are. But the most conspicuous variation is, that it has two oblong and slender bodies, of a crustaceous structure, inserted in the upper part of the corselet, and directed backwards.

Some of the more remarkable species of Flies are as follow; others are arranged according to their names.

FLY, BREEZE, or GAD-FLY. See GAD-FLY.

FLY, FLOWER. A small, but very beautiful Fly, described by Clusius. The general colour is black; the eyes are white; on the back are seven yellow spots; and the two wings have a silvery appearance.

FLY, GREY, OR TRUMPET-FLY. This is a pretty large species: the body is of a dusky grey colour, approaching to black; the breast is beset with a great number of long yellow hairs; the wings are large and transparent; the figure of the body is oblong; and the eyes are large and black. The female deposits her eggs in the nostrils of sheep, deer, and some other animals. It is called the Trumpet-Fly from a peculiar noise it makes during the heat of summer; but Linnæus gives it the name of *oestrus*, and refers it to the Gad-Fly genus.

FLY, HORNET. This species is as large as the common Hornet; and so nearly resembles it, that an incurious observer cannot distinguish the difference. The head is large; the snout, which is long and black, has a sharp point; and the eyes are prominent. The breast is large, bunched, and of a dusky colour; but the wings, legs, and belly, are an iron grey; and the upper part of the body, which consists of seven joints, is black and yellow.

FLY, HORNET, VIRGINIAN. This insect is equal in size to our largest Flies: the head and eyes are black, with a white line running from the shoulders to the mouth; and the mouth itself is armed with a long and strong weapon. The shoulders are of a blackish brown colour; and it has two silver wings. At the back part there are seven or eight joints of a whitish colour; but the other parts, except the belly, which is of a yellowish ashy-colour, incline to black.

FLY, HORNET, MUSCOVY. This species has a very long body; and large oblong eyes, which occupy the greatest part of the head. The snout is black, hardish, and divided into three parts; and with it the insect can penetrate cloth, or other substances of a similar consistence. Linnæus gives the general appellation of *afilus* to Flies of this kind; of which he enumerates four sorts, viz. the rapacious *afilus*; the hairy *afilus*; the *afilus* with round wings; and the *afilus* which stings the legs through the stockings.

FLY, HORSE, COMMON. The body of this insect is pretty large, and of an oblong shape rounded at the extremity; the skin is smooth; the eyes are large; the wings are transparent; and the colour is greyish. Each of the legs is armed with four short sharp claws; and the snout is clavated, of a cylindrical shape, and blunt at the extremity.

FLY, HORSE, GREAT. This species has a greyish head; large black eyes; and broad transparent dusky coloured wings marked with iron-grey lines. The breast and body are grey, except that a triangular white spot extends quite down the back; the thighs are black; and the legs are yellow.

FLY, HORSE, EAST INDIAN. The bite of this most pernicious insect is very severe. It is about two inches long, nearly the same in breadth, and of a brown colour, with a yellow streak along the body. This Fly builds it's nest with great care in the rafters of buildings, where it deposits it's eggs, and hatches it's young. It feeds on fruit; and, when killed, has a most disagreeable smell.

FLY, HORSE, CHINESE. The body and underwings of this Fly are of a shining green colour, which has the brilliancy of polished metal; the tips

of the wings and the under-side are dusky; but the upper wings, which are of a light brown hue, are very thin and transparent.

FLY, HORSE, PURPLE AND BROWN. This species is a native of the West Indies. It's wings are of a dull purplish brown colour variegated with some transparent spots. Linnæus gives these Flies the name of *hippobosca*.

FLY, ICHNEUMON, COMMON. This insect has a long, slender, black body; the head, breast, and feelers, are of the same colour; the legs are reddish, long, and slender; and the wings are transparent, except that there is a black spot near each of their edges. A weapon projects from the tail, longer than the whole body, consisting of three filiform rays, the middlemost of which is red, and the two exterior ones black. Ray gives this Fly the appellation of the Wasp *Ichneumon*, with a slender, longish body, and three very long bristles at the tail.

FLY, ICHNEUMON, WITH SILVER-COLOURED WINGS. This species has an oblong body, of a black colour, with two black feelers. The wings are marked near their upper edges with blackish spots; the legs are reddish; and from the tail proceed three long hairs. This insect, which very nearly resembles the former, has four wings like all the rest of the genus.

FLY, ICHNEUMON, WHITISH. This species is entirely white, except four black spots on the wings, which the insect, when sitting, keeps erect. It has six feet, two globous prominent black eyes, and two short black feelers. The body is slender, round, and upwards of half an inch long; there are three bristles at the tail, of equal lengths with the body, which, in the act of flying, the creature spreads into a triangular figure. This Fly makes it's appearance in May and June.

FLY, ST. MARK. These Flies generally make their appearance about St. Mark's day, when they are seen in prodigious numbers. They are somewhat smaller than the large blue Flesh-Flies, and have neither trunks nor teeth; but, notwithstanding this seemingly innocent organization, they are very mischievous, particularly in gardens. They are found about fruit-trees, sitting on the leaves, and on the flower-buds, which they essentially injure, by sucking the juices of those tender parts, and either destroying them before they expand themselves, or rendering them very weak.

Some writers gravely tell us, that these Flies were originally provided with stings; but that, being found extremely noxious, St. Mark deprived them of these offensive weapons throughout all generations. Ridiculous as this story may appear, it is firmly believed in many Roman Catholic countries, especially among the vulgar. The mouth of the St. Mark's Fly is of the same mechanism with that of the tipula, being composed of two membranous lateral lips, like the two valves of a shell-fish, which defend and cover two internal fleshy lips.

The male may be easily distinguished from the female by having a much larger head, and reticular eyes which in a manner cover the whole head. The wings of this Fly are somewhat longer than the body, and crossed in such a manner as that one of them entirely covers the other.

The peculiarities attending these Flies, when they quit the worm state to enter into that of the chrysalis or nymph, are worthy of observation. The worm appears to be in great disorder, and

gives itself various contortions, till at length the skin cracks on the surface of the back: immediately after which, the anterior part of the nymph appears at the aperture; and thus forcing it's way out by degrees, the head becomes totally useless, and is therefore left with the skin. The last transformation of this insect, or the emancipation of the Fly from the nymph state, exhibits nothing very singular, being performed in the same manner that other animals of the same kind undergo these important revolutions in their lives.

FLY, WASP. This insect is as large as the common Wasp, which it strongly resembles both in shape and colour. The head is smooth and yellowish; the body is blunt; the joints at the edges are a pale yellow; and the snout is long and pointed.

FLY-CATCHER. A genus of passeres in the Linnæan system, including twenty-one different species; the characters of which are, that the bill is almost triangular, bent inwards, notched on both sides, and beset with bristles.

FLY-CATCHER, COMMON, OR SPOTTED; the *Muscicapa Griseola* of Linnæus. This bird of passage in Great Britain appears in the spring, breeds up it's young, and then quits the island about August. It builds it's nest on the sides of trees, towards their middle; and, according to Morton's History of Northamptonshire, in the corners of walls, where spiders leave their webs. When the young brood are capable of flying, the old ones retire with them into thick woods, where they frolick among the top branches of the trees; dropping from the boughs sometimes in a perpendicular direction on the Flies that sport beneath them, and rising again in the same attitude. They feed also on cherries, of which they appear to be excessively fond.

The head of this bird is large, and brownish obscurely spotted with black; the back is of a mouse-colour; the wings and tail are dusky; and the interior edges of the quill-feathers are edged with pale yellow. The breast and belly are white; the throat and sides under the wings are dashed with red; and the legs and feet are short and black. The bill is broad at the base, round which grow several short bristles; and it is ridged in the middle.

FLY-CATCHER, PYED; called also the **COLD-FINCH:** the *Muscicapa Atricapilla* of Linnæus. This species is very rare in England. It is smaller than the hedge-sparrow; the bill and legs are black; the forehead is white; the head, cheeks, and back, are black; the coverts of the tail are spotted with white; and those of the wings are dusky transversely barred with white. The quill-feathers are also dusky; the exterior sides of the secondaries are white, and the interior dusky; the middle feathers of the tail are black, the exterior being marked with white; and the entire under-side of the body is white.

The female differs from the male in having a dusky brown head, of which colour likewise is the whole upper part of her body; the white in her wings is less conspicuous than in the male; and the under-side of her body is a dirty white.

FLY-CATCHER, BLUE. The bill of this bird is black; the crown of the head, the back part of the neck, the back, rump, and covert-feathers of the wings, are blue inclining to slate-colour; the tail and quill-feathers of the wings are dusky, but the outer quills are white at their bases. The throat and sides of the head are black, and the

same colour extends from each side of the neck to the wings; the covert-feathers under the tail are entirely white; and the legs and feet are of a dusky brown hue. This species is a native of America; and is probably a bird of passage.

FLY-CATCHER, GREEN BLACK-CAP. This bird has a slender bill, of a moderate length, incurvated and sharp at the point, of a dusky colour above, and lighter below; both mandibles, however, being yellowish near their bases. The crown, sides, and hinder part of the head, are covered with a cap of black plumage, having an angle under each eye; the throat down to the bill, and the whole remaining part of the bird, are of one uniform blue-green colour, except the greater quills of the wings, which become blackish at their tips; and the legs and feet are of a dark lead-colour.

FLY-CATCHER, GREEN, BLUE-HEADED. This species is a native of Surinam; and the bill resembles that of the former bird, being of a light cinereous colour above, and dark below. The top and sides of the head are a light blue; part of the throat under the bill is white; the neck, the entire body, and the tail, are a yellowish green; on each side of the scapulars there is a roundish blue spot; the covert-feathers and quills resemble the colour of the body, except the greater quills, which are blackish; the under-side of the tail is dusky; and the legs and feet are of a faint yellow hue.

FLY-CATCHER, GREEN INDIAN. This species has a dusky bill, a little inclining to yellow near the head; the top of the head, the upper side of the neck, and the back, are of a dark green colour; the rump and upper coverts of the tail are a lighter green; and the sides of the head, the throat, breast, belly, thighs, and covert-feathers under the tail, are yellow clouded with green. The wings are dark brown, or black; a few of the quills are yellow on the edges of their webs; the first and second row of covert-feathers have white tips, which form two transverse bars on each wing; the tail is of the same colour as the back; and the legs, feet, and claws, are a dark brown or black. This bird is a native of Bengal in the East Indies, and was first described by Edwards.

FLY-CATCHER, OLIVE-COLOURED. This bird was first imported from Jamaica; where it is known, according to Dr. Browne, by the singular appellation of Whip-Tom-Kelly, which words it's note seems to express. The bill is slender, the point of the upper chap bending downwards, and hanging a little over the lower, of a dusky hue above, and inclining to a flesh-colour beneath. A dusky line runs from the bill towards the neck; the top of the head, the upper side of the neck, and the whole back, wings, and tail, are of a brownish green or dark olive-colour; and the entire under-side, from the bill to the covert-feathers beneath the tail, is of a whitish hue a little clouded with light olive. The inner coverts, and the ridges of the wings, are also whitish; but the insides of the quill-feathers of the wings, and the under-side of the tail, are cinereous. The legs and feet, which are similar to those of other small birds, are blackish or dusky.

FLY-CATCHER, YELLOW-RUMPED. The bill of this bird is slender, a little incurvated at the point, and of a dusky cinereous colour, but somewhat lighter at the base. The top and sides of the head round the eyes are of a cinereous colour, which gradually becomes an olive-green on the hinder part of the neck and back, where there are several blackish spots. The throat, breast, and
rump,

rump, are a bright yellow; but the breast is variegated with elegant black spots. The thighs, belly, and covert-feathers under the tail, are white; the wings are of a very dark ash-colour; the tips of the first and second rows of the covert-feathers are white, forming two oblique transverse bars on each wing; the quills next the back are also edged with white; and the covert-feathers within-side the wings are white. The insides of the quills are cinereous, with narrow edges of white on their inner webs; the tail-feathers, except the two middlemost, which are black, have the central parts of their inner webs white, their tops and bottoms being blackish. The covert-feathers on the upper side of the tail are of a deep dusky colour; and the legs and feet are also dusky. This bird is a native of Pennsylvania, and is also probably found in several of the neighbouring provinces.

FLY-CATCHER, YELLOW-TAILED. This bird has a brown bill, somewhat compressed like that of the duck; about the angles of the mouth several hairs project forwards on each side of the bill; the top of the head, and the covert-feathers above the tail, are cinereous; the hinder part of the neck, the back, and the covert-feathers of the wings, are an olive-green; and the quill-feathers are a dusky brown, or blackish with an olive cast. The covert-feathers within-side the wings are a yellowish white; and the tail-feathers are yellow with dirty brown tips, except the two middle ones, which are entirely a dark brown. The whole under-side, from the bill to the tail, is whitish with faint shades of reddish brown on the sides of the breast; the sides under the wings are yellow; and the legs and feet are a dusky brown.

FLY-CATCHER, YELLOW-SPOTTED. The bill of this bird is of a dark brown or dusky colour; the top of the head, the hinder part of the neck, the back, wings, and tail, are a dark greenish olive; the greater feathers of the wings and tail are more dusky; and the inner webs of the side tail-feathers are white half their lengths from the tips; the second row of covert-feathers of the wings have white tips, and these form a white spot on the upper part of each wing. The throat, breast, sides, and inner coverts of the wings, are yellow, with small black spots down the middles of the feathers; the belly and thighs are a fainter yellow without any spots; and lines of yellow pass from the bill over each eye. The covert-feathers beneath the tail are white; and the legs and feet are a dusky brown. This bird, together with the preceding, are natives of the West Indies.

FLY-CATCHER, GOLDEN-CROWNED. This bird has a slender bill of a blackish or dusky colour; from which a broad black list crosses the eye, and extends backwards; and above it there is a narrow black line. The sides of the head, and the throat beneath the black list, are white; the hinder parts of the head and neck, and the back and covert-feathers above the tail, are blueish, with dusky spots down the centres of the plumage. The upper part of the breast is black with a small admixture of grey; on the crown of the head there is a spot of bright yellow; and the sides of the breast below the black bar, and the rump, are of the same beautiful colour. The wings are dusky, with grey edges; the tail, which is composed of twelve feathers, is dusky or blackish; the belly, thighs, and covert-feathers under the tail, are white spotted with black; and the legs, feet, and claws, are dusky. This species is a native of Pennsylvania.

FLY-CATCHER, GOLDEN-WINGED. The bill of this bird is straight, sharp-pointed, and black; from the angle of the mouth a broad black list passes through the eye; and above and below there are white lines. The throat is black; the breast, belly, thighs, and covert-feathers beneath the tail, are white; the top of the head is a bright yellow; and the upper side of the neck, the back, the rump, and the lesser coverts of the wings, are a light blueish slate-colour; the quills and the upper side of the tail are a dark cinereous; the exterior webs of the first row of outer feathers of the wings are yellow, as well as the tips of the feathers next above these, which, when united, form a spot of bright yellow on each wing. The interior coverts of the wings are white; the under-side of the tail is ash-coloured; and the legs and feet are dusky.

FLY-CATCHER, GREEN, BLACK-THROATED. This bird has a slender bill, sharp-pointed, and black; the sides of the head and part of the neck are a fine bright yellow; the throat is black; and the crown of the head, the neck, back, rump, and lesser coverts of the wings, are of a green olive colour. The wings and tail are a dark cinereous, except the tips of some of the wing-feathers, which are white; the breast is yellowish; the belly, thighs, and coverts beneath the tail, are white; and the legs and feet are dusky. This species is a bird of passage in Pennsylvania.

FLY-CATCHER, RED-THROATED. This bird has a slender black bill; the crown of the head is yellow; and a black mark passes from the angle of the bill under the eye. The hind part of the head is black; the sides of the head, part of the throat, the belly, thighs, and covert-feathers under the tail, are white; the lower part of the throat is of a dark reddish hue, which colour divides and passes under each wing; the back, rump, and upper sides of the wings, are dusky, bordered with a lightish green colour, except the two principal rows of covert-feathers of the wings, which are deeply tipped with white, forming two light bars across each wing. The covert-feathers within-side the wings are white; the tail is blackish on its upper side; and the legs and feet are black.

FLY-CATCHER, LITTLE BLUE GREY, OF EDWARDS. The bill of this bird is black, except the lower mandible, which is reddish at the base; the top and sides of the head, the upper side of the neck, the back, rump, and upper side of the tail, are all of a blueish slate-colour; from the nostrils a black arched mark passes over the eye to the hinder part of the head; the wings are externally of a brownish ash-colour, longitudinally marked with white; the two exterior feathers on each side of the tail are white; the whole under-side, from the bill to the tail, is of the same colour; and the legs and feet are black. This bird is a native of the United States of America.

FLY-CATCHER, YELLOW-VENTED. This species, which is a native of the island of Java, has a black bill, and a black front and crest. The neck, the sides of the breast, and the belly, are white; the back and wings are brown; the coverts of the tail are white; the vent is yellow; the tail is long, dusky, and barred near the extremity with white; and the legs are dusky.

FLY-CATCHER, YELLOW-BREADED. This bird, which is about the size of the gold-finch, inhabits the island of Ceylon, where it is much admired for the sweetness of its note. The bill is grey; the head and cheeks are black; the back and coverts

verts of the wings are a cinereous brown dashed with a pale yellow; the primaries and the tail are dusky edged with a pale yellow; the breast and belly are a fine light yellow; and the legs are a pale blue.

FLY-CATCHER, BLACK AND WHITE. This species has a straight bill, slender, sharp-pointed, and black. Round the basis of the upper mandible are a few black hairs pointing forwards; the forehead, and the spaces round the eyes, are white; and the entire under-side, from the bill to the coverts of the tail, is of the same colour. The top of the head, the upper side of the neck, the back, wings, and tail, are black, except that the tips of the tail-feathers are white. The rump, and the coverts on the upper side of the tail, are white, with a small admixture of brown; and the legs and feet are black. This bird was imported from Surinam.

FLY-EATER. The name of a West Indian species of lizard about the length and thickness of a man's finger. The males are green; and the females are grey, and inferior in size to the males. They feed on flies, which they pursue with so much eagerness, that they frequently leap from the tops of trees in pursuit of them. In patient expectation of seeing their prey, they sometimes lie still for twelve hours or more successively, till a favourable opportunity presents itself of gaining their aim, when they leap on the insects, and swallow them up in an instant.

These lizards are so numerous in some of the Leeward Islands, that there is scarcely a tree to be found which does not contain some of them; and even the houses of the natives are extremely infested by them.

FLYING CAT. A large species of bat found in the East Indies. See **CAT, FLYING**.

FLYING DOG. An animal of the bat kind found in the island of Ternate, so called from its supposed resemblance to the dog. The fore-feet are very long, and furnished with five toes, which assist the creature in extending its wings; the fifth toe, which is distinct from the rest, resembles a man's thumb, and is armed with a sharp crooked claw, with which the animal can suspend itself at pleasure. The hind-feet likewise have five toes, armed with crooked sharp claws; and it has no tail.

In New Spain, there is another creature of the bat kind known by the same appellation; but the description given of it by naturalists is so incomplete, that it is impossible to determine with what species of bat it corresponds.

FLYING FISH; the *Exocætus Volitans* of Linnæus. This fish, which is also called the *adonis*, *hirundo*, and *mugil alatus*, in the form of its body resembles the herring, but the back is flat; the scales are large and silvery; the dorsal fin is small, and placed near the tail; the pectoral fins, the instruments of flight, are almost as long as the body; the tail is bifurcated; the belly is white; and the upper surfaces of the wings are of an olive-colour beautifully spotted near their edges with blue. This fish is common in the Mediterranean and some other seas; but is seldom found in the British, or in any of the northern seas. It leads a most wretched life in its native element, being perpetually harassed by the dorados, and other fish of prey; and, if it endeavours to avoid them by having recourse to the air, it either meets its fate from the gull or the albatross, or sinks down again into the mouths of the finny race which

watch its aerial excursion below. Whole shoals of these creatures frequently fall on board those ships which navigate the seas of warm climates; and hence it is apparent, that nature has supplied them with instruments which frequently bring on that destruction they strive to avoid, by having recourse to an element which they cannot long enjoy.

It appears that the ancients were acquainted with this species. Pliny mentions it under the name of *hirundo*, and speaks of its flying faculty; and it is probable that Oppian intended the same by his *okeiai chelidones*, or the swift swallow-fish. What Athenæus and the last-cited author mean by the *exokoitos* and *adonis*, is not so clear: they assert that it quits the water, and sleeps on rocks, from whence it tumbles with precipitation when disturbed by unfriendly birds; and on these accounts ichthyologists seem to have made it synonymous with the Flying-Fish.

FLYING-FISH is also an appellation given to a fish of the gurnard kind. See **GURNARD**.

FOAL. The young of the horse kind. Among dealers, the word *Colt* is generally applied to express the male kind, and *Filly* the female. See **HORSE**.

FOETUS. The child, while yet contained in the mother's womb; but particularly after it is perfectly formed; till which time it is more properly denominated an embryo.

FONG-WHANG. The Chinese appellation for a very beautiful bird peculiar to that country; which, if we may give credit to the natives, is the most elegant of all the feathered tribe: but as no European has hitherto had an opportunity of describing its real nature, qualities, colours, and proportions, we forbear to publish exaggerated, and perhaps fabulous accounts.

FORDICH TROUT. This fish, which is almost as large as the salmon, continues nearly nine months of the year in the sea; and hence we may naturally infer, that it is of a different species from the common trout. Besides this, it is seldom caught with an angle in fresh water; nevertheless, its return to the rivers it frequents is so very constant and uniform, that fishermen can almost fix on a certain day when it may be expected. This fish, though generally called a trout, is, perhaps, more properly a variety of the grayling. See **GRAYLING**.

FORFICULA. See **EARWIG**.

FORFICULA MARINA; the Sea Earwig. An insect frequently found near the sea-shores, having some degree of external resemblance to the common earwig, particularly in its size. The colour is an admixture of deep black and silvery white; the shoulders are somewhat gibbous; the eyes stand close to each other on the summit of the head; and the antennæ are long and slender. It has eight pair of legs on the anterior part of the body, and eight pair more on the hinder part, with three or four bristles at the tail. This animalcule lives among rocks and stones, and moves with prodigious swiftness.

FORK-BEARD. An appellation sometimes given to the forked hake. See **HAKE**.

FORK-TAIL FISH. This fish, which is caught in the oriental seas, has a long round body, and a very long forked-tail; from whence it receives its name. Its head resembles that of the herring; on its top there is a long barb or bristle; and below the mouth there are two more, which
the

the animal keeps close to the body when in the act of swimming. It grows to the size of the mackerel; but its flesh is not much esteemed.

FORK-TAIL, among fishermen, is also expressive of the salmon in its fourth year, while it has not yet attained its full growth.

FORMICA. See **ANT**.

FORMICA LEO; the Ant-Lion. A remarkable insect which, in its prior or creeping state, shews amazing address in catching its prey; and, in its perfect or winged state, approaches to the nature of the libellulæ or dragon-flies. See **ANT-LION** and **DRAGON-FLY**.

FORNA. An appellation given by Hildergard and others to the trout.

FOSSANE. An animal of the weasel kind, about the size of the cat. Its body, which is slender, is covered with ash-coloured hair mixed with tawny; four black lines extend from the hinder part of the head towards the back and shoulders; the shoulders, sides, and thighs, are black; the whole under-side of the body is of a dirty white hue; and the tail is semi-annulated.

This animal, which inhabits Madagascar, Guinea, Cochinchina, and the Philippine Isles, is fierce and untractable; it destroys poultry in abundance; and its flesh, when young, is reckoned excellent food. The natives of Guinea call it the barbe; and the Europeans who frequent that coast, the wine-bibber, on account of the fondness it shews for palm-wine.

FOSSANE, LEVERIAN. This variety has a white spot on each side of the nose, and another beneath each eye; the remainder of the nose, the cheeks, and the throat, are black; the ears are very large, upright, rounded, thin, naked, and black; the forehead, the sides, thighs, rump, and upper part of the legs, are cinereous; the back contains many long black hairs; and on the shoulders, sides, and rump, are dispersed some black spots. The tail, towards the end, is black, but near the base, mixed with tawny slightly annulated with black; and the feet and claws are white.

This species is of the size of the genet, to which it bears a strong resemblance; and its tail is as long as its whole body.

FOSSANE, OF BROOKS. This species has a grey nose, marked with a little brown; the mouth and jaws are white, with a dark brown spot on each side; the eyes resemble those of the cat; and the ears are rounded, and of a fleshy colour. The head is grey mixed with tawny; and the forehead is marked with a brown line. The body is likewise grey and tawny, having a dark brown line along the ridge of the back reaching to the tail; and the sides are grey, adorned with lines of very dark brown olive spots. The belly and feet are white; and the tail is long and grey, with blackish or dark brown rings.

FOSSORES. A species of small worms hatched from the eggs of flies which feed on the parenchymatous substance of the leaves of plants, burying themselves between the two membranes. Reaumur gives these animals in general the name of ascarides; but as they greatly differ in their size, and in the manner of their eating and destroying the leaves, the small ones, which eat but slowly, and gnaw their way in crooked furrows, are distinguished by the appellation of *Fossores parvi*; and, on the contrary, those which are larger and more voracious in their way of living, are called *Fossores magni*.

FOUMART. A provincial appellation for an animal of the weasel kind, called also the fitchet and pole-cat. See **POLE-CAT**.

FOURMILLIER. A name given by Buffon to the myrmecophaga didactyla of Linnæus, or the little ant-eater, the lesser yellowish tamandua, or the white American coati. This animal has a conic nose, bending a little downwards; small ears hid in the fur; two hooked claws on the fore-feet, and four on the hind. The head, body, limbs, and upper part and sides of the tail, are covered with long, soft, silky hairs, of a yellowish brown colour; and the tail is thick at the base, and tapers to a point. This animal inhabits Guiana, and climbs trees in search of those ants which build their nests in the branches. See **ANT-EATER**.

FOWL. This term, when taken in a general sense, is of similar import with Bird; but, in a limited view, it more peculiarly signifies the larger kinds of birds, both wild and domestic, which are either reared or pursued for the purposes of food. In this sense, Fowl includes turkies, geese, ducks, pheasants, partridges, pigeons, cocks and hens, and a variety of other birds. Our common poultry were originally brought from India and Persia. Aristophanes calls the cock the Persian bird; and says, that it was known in that country before Darius and Megabyzus. These birds are now found wild in the isle of Tinian, and other islands of the Indian Ocean; and in this state their plumage is black and yellow, and their combs and wattles purple and yellow. They were certainly denizens of Britain before the arrival of the Romans; for Cæsar informs us, that they were one of the sorts of food forbidden to the natives. It seems probable that the Phœnicians, who traded to Britain about five hundred years before Christ, first introduced them into this country. As to the other domestic Fowls, (turkies, geese, and ducks, excepted) we seem to be indebted for them to the Romans; but the Wild-Fowl were our own from the earliest periods.

FOX. An animal of the dog kind, which it exactly resembles in its internal conformation. It is a crafty, lively, and libidinous creature; breeding only once a year, unless some accident deprives it of its first litter; and generally producing four or five cubs, which, like puppies, are brought forth blind. The female goes with young about six weeks; and though it is a generally received opinion that this animal will not generate with the dog kind, late experiments and observations have proved it to be an erroneous one. Buffon indeed was unsuccessful in attempting to bring about an union of the two species; but what failed when pursued on mechanical principles, has frequently been effected by nature.

The Fox is smaller and more slender than the wolf, though its general conformation is the same: the former is about two feet three inches long, and the latter three feet and a half. The tail of the Fox is longer in proportion, and more bushy; its nose is smaller, bearing a stronger resemblance to that of the grey-hound; and its hair is softer: but its eyes, like those of the wolf, are obliquely placed; its ears have a similar direction; and, in proportion to its size, its head is equally large. From the dog this animal differs in a more essential manner: its strong, offensive smell, is peculiar to the species; its habits and pursuits are by no means correspondent with those of the dog; and, though marked with few internal variations, and fewer external

ternal ones, the kinds are extremely distinct, though no description can give the just discriminations.

The Fox has ever been famous for his cunning and artifices; and he in a great measure merits the reputation he has acquired. Without attempting to oppose either the dogs or the shepherds, without attacking the flock, or alarming the village, he finds an easier way of subsistence, and gains by address what is denied to his strength or courage. Prudent, patient, and vigilant, he waits the opportunity of depredation, and varies his conduct on every occasion. Self-preservation seems to be his actuating principle; for, though nearly as indefatigable, and actually more swift, than the wolf, he does not entirely rely on either, but forms himself an asylum, to which he may retire in case of necessity, where he shelters himself from danger, and rears his young.

It is almost invariably true that, among the human race, those who lead a domestic life are more civilized, and more endowed with wisdom, than such as wander from place to place: thus, among the inferior ranks of animated nature, we may suppose that those who take possession of an home, possess a superior degree of instinct. The choice of situation, the art of making it convenient, of concealing its entrance, and securing it against more powerful animals, are all so many indications of industry and sagacity. The Fox possesses all these qualities in an eminent degree, and turns them to his advantage. He generally keeps his kennel at the edge of a wood, and yet within an easy journey of some farm-house or cottage: from thence he listens to the crowing of the cock, and the cackling of the domestic fowls; he scents them at a distance; he seizes his opportunity, conceals his approaches, creeps sily along, attacks his prey, and seldom returns without his booty. If he gets into the farm-yard unmolested, he begins to level all the poultry without remorse; and, carrying off a part of the spoil, hides it at some convenient distance, and then returns to the charge. In this manner, he brings them one by one, and thrusts them into the earth with his nose; and afterwards, at his leisure, he hides them more completely, by covering them with loose earth; in which condition they remain till the calls of hunger stimulate him to pay them another visit. The same arts are practised by him when he finds birds entangled in springs laid for them by the fowler; he very expertly liberates them from the snares, hides them for a few days, and knows exactly when and where to avail himself of this buried treasure. He is equally alert in seizing young hares and rabbits, before they have sufficient strength to escape from him; and, when the old ones are wounded and fatigued, he seldom fails to discover them in their moments of distress, and to render them his prey. He likewise searches out for birds nests; seizes the partridge and the quail while sitting; and destroys a large quantity of game. The wolf, indeed, is the most injurious to the peasant; but the Fox to the gentleman. In short, nothing which can be eaten seems to come amiss to him; rats, mice, serpents, toads, and lizards, all become the prey of this unfeeling glutton. When urged by hunger, he will even feed on vegetables and insects; and those Foxes which live near the sea-coasts, for want of more desirable food, will eat crabs, shrimps, and shell-fish. In vain does the poor hedge-hog roll itself up in a ball, to oppose him; this determined plunderer never desists from teaz-

ing the poor animal, till it is obliged to extend itself, when he instantly devours it. Wasps and wild bees are attacked with equal success: though at first they fly out on their invader, and actually oblige him to retire, their triumph is but short; for the Fox, rolling himself on the ground, crushes such as stick to his skin; and then returning to the charge, by unremitted perseverance, and a repetition of the same expedient, he obliges them to abandon their combs, and then eagerly devours both wax and honey.

The chase of the Fox is more pleasant and amusing, and requires less preparation, than that of the wolf. As dogs have a natural repugnance to pursue the wolf, so they are equally alert in the chase of the Fox, preferring it even to the hare or the buck. The instant the Fox perceives himself pursued, he makes for his kennel, and takes refuge at its bottom, where for a short time he loses the cry of his enemies; but the whole pack soon reaching its mouth, redouble their vehemence and rage; and the little harrier, which is usually an associate in the chase, boldly ventures in. It frequently happens that the kennel is formed under a rock, or among the roots of old trees; and in such cases the Fox cannot be dug out, nor is the harrier able to contend with him at the bottom of his hole. By this prudent selection of situation, he generally remains secure; but as this choice is rather accidental than intended, he is commonly dug out; and then the hunters usually carry him in a bag to some open country, and there liberate him before the expectant hounds. The hounds and the hunters eagerly pursue; the former from an innate principle, and the latter under the impulse of a temporary frenzy, which agitates the body, and prevents the mind from making any reflection on the futility of the pursuit. What adds to this entertainment, is the strong scent the Fox leaves, which always keeps the hounds in full cry; but though his scent is much stronger than that of the hare, it is much sooner evaporated. His various shifts to escape, when every retreat is cut off to his kennel, are ingenious and surprising: he always chuses the most sylvan shades, and pursues those paths which are entangled with thorns and briars; he does not double, nor adopt any of the unavailing efforts of the hare; but flies in a direct line before the hounds, where the scent is less liable to remain; and, at last, when overtaken, he defends himself with desperate obstinacy, and fights with silent courage to the very last gasp.

The first year, the Fox is called a cub; the second, a Fox; and the third, an old Fox. He is eighteen months, or two years old, before he arrives at his full size and perfection; and, if unmolested, will live from twelve to fourteen years.

As the Fox is inimical to all other animals, so the various tribes of nature, which in any degree possess his strength, are at variance with him. The dog, as already observed, hunts him with peculiar acrimony; and the wolf, which is a still more potent and necessitous enemy, pursues him to his very retreat. Some authors gravely inform us, that the Fox, in order to keep the wolf at a distance, lays at the mouth of his kennel a certain herb, to which the other has a particular aversion. This fabulous story, however, at least implies, that these two animals are as inimical to each other as they are to all the rest of animated nature.

But the Fox is not hunted by quadrupeds alone: for those birds which know him to be their implacable

placable enemy, attend him in his excursions, and give each other warning of his approach. The daw, the magpie, and the blackbird, conduct him along, perching on the hedges as he creeps below, and by their cries and notes of hostility apprise other animals of their danger; a caution which they perfectly understand, and immediately put in practice. Even the hunters themselves are often informed by those birds of the place of his retreat; and accordingly send their dogs into those thickets where they are particularly noisy and querulous. Thus is it the fate of this petty plunderer to be detested by every rank of animals; all the weaker classes shun him, while all the stronger ones pursue him.

Among the various tribes of wild animals, none are more subject to the influence of climate than Foxes; and there are found almost as many varieties in this kind as in any of the domestic animals. The generality of Foxes, it is well known, are red; but there are some of a greyish cast; and Buffon asserts, that the tip of the tail in all the Fox tribe is white, though this peculiarity certainly does not always exist in this country. In Great Britain we only meet with three varieties of this animal; and these are rather established on a diversity of size than of colour or form. The greyhound Fox, which is the largest, tallest, and boldest, will attack a full-grown sheep; the mastiff Fox is less, but more strongly built; and the cur Fox, which lurks about hedges and out-houses, is the smallest, and most common, as well as the most destructive of the three to peasants and farmers.

In the hyperborean regions, Foxes are found of all colours; black, blue, grey, iron-grey, silver-grey, white, white with red legs, white with a black head, white with a black tip to the tail, red with the throat and belly entirely white, and sometimes with a stripe of black running along the back, and another crossing it at the shoulders. The common kind, however, is more universally diffused than any of the former; being found in Europe, in the temperate climates of Asia, and also in America; but they are very rare in Africa, and in the countries lying under the torrid zone. The furs of some of the foreign Foxes are peculiarly esteemed: the skins of blue Foxes are very scarce and valuable; but, of all others, those of black Foxes are most esteemed, one of which often sells for forty or fifty crowns. The hair of these animals is so disposed, that it is impossible to tell which way the grain lies; for if the skin is held by the head, the hair falls towards the tail; and, if it is held by the tail, it hangs down equally smooth and even to the head.

FOX, COMMON. This species has a sharp nose; lively hazel-coloured eyes; sharp, erect ears; and a long, straight, bushy tail, tipped with white. The body is a tawny red, mixed with ash-colour; and the fore-part of the legs is black. But the creature is subject to considerable variations in colour: its voice is a kind of yelp, and not a bark; and its bite, like that of the wolf, is very severe and dangerous.

FOX, CROSS. This variety has a black line passing transversely from shoulder to shoulder, and another along the back to the tail. Cross Foxes inhabit the most frigid climates of Europe, Asia, and North America: their furs are thicker and softer than those of the common sort; and great numbers of their skins are imported from Canada.

FOX, BLACK. This creature is the most cunning, as well as most valuable, of all the vulpine

tribe. Its skin is more highly esteemed in Russia than the finest fables. It inhabits the northern parts of Asia and North America; but those skins which are imported from the latter, are of an inferior quality.

FOX, BRANT. Gesner and Linnæus describe this Fox as being of a fiery redness: the former calls it brand-fuchs; and the latter, brandraef. One of these animals, which was kept in an English menagery, was scarcely half the size of the common Fox; the nose was black, and much sharper; the space round the eyes was ferruginous; the forehead, back, shoulders, sides, and thighs, were mixed with red, ash-colour, and black, the ash-colour being predominant; the belly was yellowish; and the tail was black above, red beneath, and cinereous on the sides. This creature was imported from Pennsylvania; and appears to be allied to the karagan, a small species very common in all parts of Great Tartary.

FOX, CORSAK. This animal, which inhabits the deserts beyond the Yaik, and from the Don to the Amur, lives in holes, howls, barks, and burrows deep: Forty or fifty thousand of these creatures are generally caught by the natives of those countries yearly, by means of falcons and greyhounds; and their skins are sold to the Russians, at the rate of forty kopeiks, or twenty-pence sterling, each. They likewise export considerable numbers of their skins into Turkey, using them instead of money.

This species has upright ears, soft downy hair, a bushy tail as long as the whole body, a white throat, and yellowish green irides. In summer, its colour is a pale tawny; and, in winter, grey. The base and tip of the tail is black; and the other parts are cinereous. This small species is confounded by Buffon with the arctic Fox.

FOX, ARCTIC. The hair of this species is softer than that of the common Fox; and the tail is shorter and more bushy. Some of these animals are blue; and others are white at one season of the year, and greyish and brown at another. The hair is much longer in winter than in summer, as is usual with respect to those animals which inhabit cold climates. The nose is sharp; the ears are short, rounded, and almost hid in the fur; the legs are short; and the toes are entirely covered with fur, like those of the hare.

The Arctic Fox is very common in all the northern countries bordering on the Icy Sea, and is seldom seen in more propitious climates. It is principally found in the mountainous and barren regions of Norway, Siberia, and Lapland, where it burrows under ground, and strews the bottom of its kennel with moss. In Greenland and Spitzbergen, it lives in the cliffs of rocks, being prevented from burrowing by the insuperable barrier of frost; and two or three pair generally inhabit the same hole. About Ladyday they copulate, during which time they continue in the open air; after which they take to their holes, and go with young nine weeks. Like dogs, they continue united in the act of copulation, and bark like these animals; for which reasons the Russians call them pefzti. They possess all the cunning of the common Fox; prey indiscriminately on the young of all aquatic fowls before they can fly; on grouse and hares, and even on the eggs of birds. In Greenland, they are compelled by necessity to subsist on berries, shell-fish, or any substances which the sea casts forth; but their principal food in the north

FOX

north of Asia, and in Lapland, is the leming. Those of the last-mentioned countries are extremely migratory, pursuing the leming, a very wandering and destructive animal, which makes it's appearance in certain countries once in the space of several years. On these occasions the Arctic Fox deserts it's usual haunts for three or four years successively, and returns again when it's prey begins to fail. The skins of this kind of Foxes are but of small value.

FOX, ANTARCTIC. This species, which is a native of the Falkland Isles, near the extremity of South America, has short-pointed ears, and hazel-coloured irides. The head and body are of a cinereous brown hue, the hair being more woolly than that of the common Fox; the legs are dashed with rust-colour; and the tail is dusky tipped with white. This animal, which is about one-third larger than the common Fox, has much the appearance of the wolf in it's ears, tail, and the strength of it's limbs; for which reasons the French call it *loup renard*, or the wolf Fox.

The Antarctic Fox is the only land animal of these remote isles. It lives in the vicinity of the sea-shores; kennels like the common Fox; and forms regular paths from one bay to another, probably for the convenience of surprizing water-fowl, on which it subsists. It becomes very meagre at certain seasons for want of prey, is very tame, emits a most foetid smell, and barks like the dog.

FOX, GREY. The nose of this creature is sharp; the ears are long, sharp, and upright; the legs are long; and the whole body is of a grey colour, except a little redness about the ears. This species, which inhabits Carolina and the warmer North American climates, differs from the arctic Fox in shape, and in the nature of it's habitation. It agrees with the common Fox in the first; but varies from it in the last, never burrowing, but living in hollow trees. The sportsman receives no diversion from the chase of this animal; for it speedily takes to it's retreat, whence it is impossible to dislodge it. Unlike the species in general, it has no strong foetid smell. It is easily domesticated when caught young; and it's skin, when in proper season, is very convenient for the manufacture of muffs.

FOX, SILVERY. This species, which resembles the common Fox in shape, abounds in the woody eminences of Louisiana, where there is abundance of game, with which it supplies all it's wants. It is a very beautiful creature; the short hairs covering it's body are of a deep brown colour; and over them spring long silvery hairs, which give it a very elegant appearance.

FOX, BARBARY. This animal, the Chacal of Buffon, has a long slender nose, sharp upright ears, and a long bushy tail. It is about the size of the common Fox; but it's limbs are shorter, and it's nose is more slender. The body is of a pale brown colour; the space above and below the eyes is black; from behind each ear proceeds a black line, which soon dividing into two, extend to the lower part of the neck; and the tail is surrounded with three broad rings.

FOX, MACASSAR. This creature receives it's name from the island where it is principally found. The tail is exceedingly long and bushy; the ears are short; the feet are flat, and furnished with long claws not much unlike those of the bear or monkey; and the whole body is of a cinereous colour.

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FOX, SEA. A large fish, distinguished in the Artedean system by the name of the *squalus* with a tail longer than the body. Many authors affirm that it has the rank smell of the Fox, and that it's flesh is extremely ill-tasted: but, on a strict investigation of the subject, this does not appear to be founded in truth; for it's smell differs very little from that of other fishes; and it's flesh is far from being disagreeable. Hence it will appear, that these unfavourable qualities have been attributed to it in order to strengthen it's resemblance to the Fox; a name which only the length of it's tail seems to render applicable; and even though the tail is very long for a fish of this kind, it can scarcely be said to resemble that of the Fox.

This fish is about nine feet long, and sometimes thirteen or fourteen; and it's breadth, where largest, is about fourteen inches. The tail is nearly as long as the whole body besides, and is bent downwards in the shape of a scythe. Near the origin of the tail, there is a single fin below; and the spine being extremely flexible in this part, the tail is by this means easily elevated or depressed. On the back there are two eminences, a large one near the middle, and a smaller near the tail. There are three fins on each side; the pair next the head are large, and resemble the wings of a bird; but the others are smaller. The skin is smooth, and without scales; and the fins and eminences on the back are composed of a sort of ribs, united by a strong, tough membrane. The tongue, which is inseparably annexed to the lower jaw, is composed of a great number of bones articulated together by a fleshy substance of a fibrous texture; and covered with a membrane, in which are several prominences that appear as pellucid as the finest crystal when viewed by the help of a microscope. The throat and stomach are remarkably large; and some authors inform us, that the creature, when affrighted, will swallow it's young ones, and afterwards vomit them up again when the danger is past: others, who expatiate on it's cunning, tell us, that when it has swallowed a bait affixed to a hook, it will take in the whole line, till it comes to a weak place, where it can bite it asunder. But these tales seem only calculated to keep up the resemblance between it and the Fox with respect to craftiness; for they but ill apply to this fish, which has no teeth that can assist it in biting with effect, though it has three rows of them. The head seems a mere lump of flesh, being covered with muscles, of which some are four inches thick; the skull, which is no bigger than a man's fist, is very thick, and divided into three cavities, each of which contains a small quantity of mucous matter mixed with blood; so that the fish seems to be almost destitute of brains. The eyes are as large as those of the ox, and of an hemispheric figure, being flat before, which gives them a very singular appearance; the back is of an ash-colour; and the belly is white.

The Sea Fox is commonly caught in the Mediterranean, where it feeds on other fishes and marine plants. It has also been sometimes taken in the British seas; and is supposed to be the fish called the *flusker*, from it's attacking and beating the grampus with it's long tail when it rises to the surface of the water for the benefit of the air.

FOX, TAILED MONKEY. Another appellation for the *saki*, or *cagui*; so called from the remarkable length and hairiness of it's tail.

FRANCOLIN. A delicious bird of the partridge

tridge genus, to which some authors have given the name of attagen, though they seem to constitute two distinct species. The Francolin, properly so called, is a native of the East Indies, and some islands of the Archipelago. It is somewhat larger than the common partridge; and each of the wings, when closed, is six inches long. The bill, which is about an inch long, is black, and shaped much like that of the common hen; and the tongue and inside of the mouth are of an hazel colour. The irides are also hazel-coloured; and the head is covered with black feathers, except that there is a white spot under each eye, and a small admixture of red on the crown, with a few small spots of white which proceed from the part above the eyes, and join on the hinder part of the head. The feathers, all round the neck, are of a reddish orange-colour speckled with small round spots behind between the neck and back; the belly and breast are black; but there are regular round white spots on the sides: there are also white spots on the belly and thighs, but these are more broken, and mixed with a little reddish colour. The covert-feathers under the tail are entirely a reddish orange; the plumage of the back is black and brownish; and the feathers on the sides of the back, which fall partly over the wings, have the black and brown indented into each other. The wings are dusky, and regularly marked with round, light brownish spots; and the insides of the wings are of the same colour, except that the spots are more broken, and run in transverse lines. The lower part of the back and the rump are covered with variegated plumage, black and white in narrow transverse lines; the tail-feathers are marked in the same manner, except the tips, which, for an inch in breadth, are wholly black; the legs and feet are overspread with red scales; and three of the four toes are connected near their bottoms by membranes. The claws are of a horn colour; and the legs of the male are furnished with spurs.

FREGAROLA. A name given by some writers to the small river-fish well known in England by that of the minnow.

FREGGIA. A long anguilliform fish of the ænia kind, more commonly called cavarigo.

FRINGILLA. The name of a large genus of birds of the general order of passeres, in the Linnean system of zoology. The distinguishing characters of this genus are, that the tongue is whole and even; the beak is of a conic, straight, sharp-pointed figure; and one mandible receives the other into the sinus of it's basis. Of this genus are the chaffinch, goldfinch, linnet, sparrow, &c.

FRINGILLAGO. An appellation given by some naturalists to the whole genus of the titmouse; while others have restrained it to that particular species commonly known in England by the name of the ox-eye. This bird is considerably larger than any of the genus, weighing nearly an ounce; whereas the others seldom exceed three drams. The head and throat are black; the cheeks are white; the back is green; the belly is of a yellowish green hue, divided in the middle by a bed of black which extends to the vent; and the rump is of a blueish grey colour. The quill-feathers are dusky, edged with blue and white; the coverts are blue, the greater being tipped with white; the exterior sides of the outmost feathers of the tail are white, but the rest are blueish, and their interior sides are dusky. The legs are of a leaden colour; the toes are divided to the origin;

and the back toe, as is common to the whole genus, is large and strong. This bird, which builds it's nest in hollow trees, and lays ten eggs, sometimes visits gardens, and is extremely injurious to the fruit-trees.

FRINGILLAGO AMERICANA CÆRULEA. The American titmouse; otherwise known by it's Brazilian name, guiracenoia.

FRINGILLARIUS ACCIPITER. A species of hawk, called by some authors nifus; and, in England, the sparrow-hawk.

FRIZONE. An appellation sometimes given to the caucothraustes, or grosbeak; called also the haw-finch.

FROG. This animal is too well known to require a minute description; but some of it's habits and properties are too singular and interesting to remain unnoticed. Compared to the bulk of it's body, it's leap, or spring, is remarkably great; and it is the most expert swimmer of all four-footed animals. For these purposes nature has excellently adapted the parts of this creature; the arms being light and active; and the legs and thighs long, and furnished with very strong muscles.

To describe the form of animals well known, would be superfluous; but, to mark those differences which distinguish one from another, is by no means unnecessary. The Frog and the toad have a general similitude, and yet the lines which divide them are unbroken and entire. The Frog moves by leaping; the toad crawls along the ground. The Frog is in general smaller than the toad, is of a brighter colour, and has a more polished surface; the toad is brown, rough, and dusky. The Frog is light and nimble, and it's belly is small in proportion to it's size; but the toad is slow, corpulent, and heavy. The Frog, when caught, raises up it's back into a kind of hump; whereas that of the toad is straight and even. The internal conformation of these two animals is nearly the same, except that the lungs of the toad are more compact than those of the Frog; and that the former has fewer air-bladders than the latter, which renders it less adapted for an aquatic life.

The brain of the Frog is but small in proportion to it's size; it has a very wide swallow; and a stomach apparently small, but capable of great distension. The heart, like that of all other animals truly amphibious, has but one ventricle; the blood, therefore, can circulate, while the creature remains under water, without the assistance of the lungs, which resemble a number of small bladders joined together like the cells of a honey-comb; they are connected to the back by muscles; and the animal can distend or exhaust them at pleasure. The male has two testiculi lying near the kidneys; and the female has two ovaries, near the same part; but neither male nor female have any evident external instruments of generation, the anus serving for that purpose in both.

These are the most striking peculiarities in the anatomy of the Frog; and in these it agrees with the toad, the lizard, and the serpent. The internal conformation of all these tribes are nearly the same; they are furnished with spongy lungs, a simple heart, and appear destitute of the external members which serve to continue the kind.

The common Frog begins to couple early in the season; namely, as soon as the ice is thawed from the stagnant waters. In some places, this genial appetite is protracted by the cold till the

month of April; but it generally begins to operate about the middle of March. The male is usually of a greyish brown colour; but the female is more inclining to a yellowish hue, and spotted with brown. When they copulate, the colours of both are nearly alike on the back; but, as they change their skins almost every eight days, the old ones falling off in the form of a mucus, the male becomes more yellow, and the female more brown. The arms and legs of the males are much stronger than those of the females; and, at the time of impregnation, they have a kind of fleshy excrescence on their thumbs, which they firmly fix to the breasts of the females. This Linnæus supposed to be the male instrument of generation; but, on a minute inspection, it is found only conducive to keep the female in a more strict embrace: it may be amputated, and the impregnation continue unimpaired; and it is even sometimes found in the females, while some of the other sex are entirely destitute of it.

The sexes couple only once a year, and then they continue united sometimes for four days successively. At this time their bellies are greatly inflated; that of the female is filled with eggs; and the skin of the male is distended with a kind of limpid water, which is ejected in impregnation. As soon as the male has leaped on the female, he throws his fore-legs round her breast, and closes them so firmly, that they are with no small difficulty disengaged. This grasp appears to be involuntary and convulsive; the animals cannot be torn asunder without a laceration of the parts; they swim, creep, and leap, thus united, till the female has shed her spawn, which at length she performs almost in an instantaneous manner. How the impregnation is performed without any apparent instruments of generation, has long been an object of enquiry, and still continues undetermined. In order to solve this difficulty, Ræfel, of Nuremberg, persevered in an examination of their mutual congress for three years successively; and availed himself of all the lights which dissection, or the analogy of formation, could furnish him. Having chosen twelve couple of Frogs thus united to each other, and placed each couple in a glass vessel filled with water, he kept them in his view almost day and night, and even sat up two nights together for the purpose of examining their operations. The first day, he observed nothing that deserved remark; the second, they began to be more agitated, the males making a noise somewhat resembling the grunting of hogs; while the females only continued to sink and rise alternately in the water. The male of the first couple ejected the humidity with which his body was swollen, and soon after quitted the female. Our philosopher continued for twelve hours to observe whether the female would emit her spawn; but finding that she was tardy, he dissected both her and the male. In the latter, the spermacetic vessels were entirely empty, as might have naturally been supposed; but the spawn of the female still continued in her body: on it's being extracted and put into water, it perished without producing any animal whatever; hence he rationally concluded it requisite that the eggs should be ejected from the body of the female before they could be prolific. In another pair, the male quitted the female, which did not eject her spawn till sixteen days after; and these, like the former, came to nothing. But, with respect to some of the rest, the case was very different: the

females ejected their spawn; while the males remained in their stations, and impregnated the masses, at different intervals, as they fell from the females; and these all produced animals in the usual course of generation. From these observations, it is easy to infer, that the female was neither impregnated by the mouth, as some philosophers have imagined, nor by the excrescences at the thumbs, as was the opinion of Linnæus; but by the insperion of the male seminal fluid on the eggs of the female, as they proceeded from her body.

A recent publication, by that very penetrating naturalist the Abbe Spallanzani, seems, indeed, to throw all the light on this subject which can ever be expected. This gentleman made the same experiments as Ræfel, and found the same effects: of one hundred and fifty-six females which he opened, after they had been some time in the embraces of the males, but before they had made any voluntary emissions, he did not find one egg which was prolific; whereas those excluded spontaneously by the females were all endowed with the vital principle. He, however, farther observed, that as soon as the eggs began to be discharged, the agitations of both the male and the female were extreme; and that an obtuse point, which he suspected to be the penis, was elongated, and occasionally brought towards the eggs nearest the vent; but he was unable to perceive any emission. In order to clear up this point, he placed some couples, of which the females were beginning to discharge their eggs, in empty vessels. He succeeded in this experiment beyond expectation; for such was the attachment of the males, that they persisted in the performance of their office, though taken out of their natural element. The Abbe now clearly perceived a small jet of limpid liquor falling from the tumid point in the vicinity of the anus upon the eggs extruded from the body of the female. The eggs being afterwards put into water, and bringing forth young, he concluded, without hesitation, that the liquor was real semen; and was afterwards justified in this opinion, by discovering it in the vesiculæ seminales, as well as by a whimsical and seemingly ludicrous experiment of putting breeches of waxed taffety on the male; when, notwithstanding this incumbrance, he fought the female with equal ardour: but the event was such as he might naturally have expected; the eggs were never prolific, and the semen appeared in the breeches in the shape of drops; and that these drops were real semen, was ascertained beyond all dispute, by an artificial fecundation which the Abbe obtained by their means.

A single female Frog produces from six to eleven hundred eggs at a time; and, in general, she throws them all out together by one effort; though in this operation she is sometimes occupied for the space of a whole hour. While thus employed, the male may be observed performing the part of a midwife in promoting the expulsion of the eggs, by working with his thumbs, and compressing the body of the female. The eggs being emitted, expand themselves into a round form, and drop to the bottom of the water; while the male swims off, and strikes his arms with his usual freedom and agility. The egg, or little black globe, which produces the tadpole, is encompassed with two different kinds of fluid: that which immediately surrounds the globe is clear and transparent, and inclosed in it's proper membrane; while that which surrounds the whole is muddy and mucous.

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The transparent liquor nourishes the tadpole, and answers the same purposes that the whites of eggs do to birds.

During the four first hours after the eggs are emitted, no perceptible change takes place; but after that space they begin to grow larger, to assume a lighter colour, and soon after to re-ascend to the surface of the water. At the expiration of eight hours, the white fluid in which the eggs swim grows more thick; they lose their blackness; and, as they increase in size, somewhat of their spherical figure. The twenty-first day, the egg begins to open a little on one side, and the rudiments of a tail to appear, which gradually becomes more and more distinct. On the thirty-ninth day, the little animal acquires motion; its tail is brandished at intervals; and it then becomes evident that the circumfused liquor nourishes it. In two days more, some of these animalcules fall to the bottom; while others continue swimming in the surrounding fluid with increased vivacity and motion. Those which fall to the bottom remain in that situation the whole day; but, after having expanded themselves a little, (being hitherto folded up) they mount at intervals to the mucus they had before quitted, on which they are observed to feed with great alacrity. The next day, they assume their tadpole form; and, in three days more, they are perceived to have two little fringes beneath the head, which supply the place of fins; and these, in four days after, acquire a more perfect form. At this period they begin to feed greedily on such weeds as their situation affords; and, quitting their former food, they derive their subsistence wholly from them till they arrive at maturity. When ninety-two days have elapsed, two small feet begin to be protruded near each of their tails; and, four days after, they refuse all vegetable food, their mouths appear furnished with teeth, and their hinder legs are compleatly formed. In a day or two more, their arms are compleatly produced; and each of the animals appears wholly perfect, except that it still continues to carry a tail. In this singular situation, the creature resembles at once a Frog and a lizard; which figure it retains for about six or eight hours; and then the tail dropping off by degrees, the animal appears in its last and most perfect form.

The Frogs having thus changed their figure in less than a day, are observed to change their appetites likewise; and so extraordinary is this transformation, that their former food is absolutely rejected; and they immediately become carnivorous, and prey on worms and insects; but as the water does not supply these in sufficient abundance, they are compelled to quit their native element, and to seek their food on land. At first, indeed, their imbecillity obliges them to skulk among bushes, and under stones; but, when a shower has once fallen and refreshed the earth, the young animals are seen to quit their retreats, in order to enjoy the grateful humidity. On many occasions the ground is perfectly obscured by their numbers; some hunting for their prey, and others searching for safe retreats. From the myriads that thus present themselves, some credulous persons have conjectured that these animals were generated in the clouds, and showered down on the earth; but, had such been at the trouble of tracing them to the nearest pool, they would no doubt have reasoned in a very different manner.

As the Frog derives the greatest part of its sub-

sistence from the land, so it lives principally on it: however, when the cold nights commence, it returns to its native element, always making choice of stagnant waters, where it can lie concealed at the bottom; and there it continues torpid, or at least possessed of very little motion, during the winter; like the rest of the dormant race, neither requiring food, nor needing any assistance from the air.

The difference of sex in these animals is not perceptible till they have arrived at their fourth year; nor do they begin to propagate till they have reached that period. Hence, on comparing their slow growth with their other habitudes, it would seem that they live about twelve years; but so numerous are their enemies both at sea and land; that it is probable very few of them reach that period which would naturally terminate their lives.

Frogs, as already observed, live on insects, but they never devour any not endowed with motion. They continue fixed and immoveable till their prey appears; and, when they think it sufficiently near, they spring forward with great agility, dart forth their tongues, and seize it with unerring aim. The tongue of the Frog, as in the toad, the lizard, and the serpent kinds, is extremely long, and formed in such a manner, that its point is reverted down the throat: this offensive weapon is likewise covered with a glutinous substance, by means of which every animal which it touches adheres to it, and is thus held fast till it can be drawn into the mouth of the Frog.

But though Frogs are sufficiently predaceous, they are nevertheless capable of continuing a long time without food. A German physician kept one of them for eight years in a glass vessel covered with a net; during which long period, its food was at all times very sparing: in summer it was fed with grass; and in winter, with hay a little moistened. Flies were also occasionally put into the glass, which it generally followed with open mouth, and caught very expertly. In winter, when flies were with difficulty procured, the animal generally became lean; but, in summer, it recovered its flesh again. It was kept in a warm room, and seemed always lively, and ready for its prey: however, on the commencement of the eighth winter, when no flies could be found, it languished, and died. It is not, indeed, certain how long this animal might have lived, had it been furnished with proper nourishment; but of this we are aware, that a very small quantity of food will supply the necessities of these creatures.

The Frog is so extremely tenacious of life, that it will jump about several hours after its head has been amputated; and continue in motion even after it has been embowelled. When stripped of its skin, either by cruel children, or experimental naturalists, it appears for several hours to feel no abatement of its natural vigour; and we are credibly informed, that many of these animals, after having undergone this terrible operation, have acquired new skins.

The croaking of Frogs is so well known, that from this circumstance, in some countries, they are distinguished by the ludicrous appellation of Dutch nightingales: indeed, the noise of the aquatic Frogs of Holland is loud beyond conception; and it will hardly be credited, that animals of such a diminutive size should be able to send forth notes which can be heard at the distance of three miles; yet this is actually the case. According to the ingenious

ingenious Ræfel, the large Water-Frogs have voices as loud as the bellowing of bulls; to effect which, they puff up their cheeks to a surprizing magnitude. However, the males only croak, the females remaining silent; and the voice of the former seems only the call of courtship. It is certain that, during the season of copulation, the loudness of their croaking is in some places very troublesome; for then whole lakes seem to be vocal, and their various dissonant notes almost stun the neighbourhood. Before rainy weather, they also exert their voices to the utmost; they are then heard to pour forth their tones with unceasing assiduity, and to welcome the approach of their favourite moisture. No barometer more certainly prognosticates an approaching change of weather; and this may probably serve to explain an opinion which some people entertain, that there is a certain month in the year, called paddock-month, in which Frogs never croak: while the fact is, that, in the hot season, when the moisture is dried up, they neither enjoy health nor food in the same proportion as during rain; and this renders them mute and inactive.

As Frogs closely adhere to the backs of their own species, so it has been proved, by repeated experiments, that they also adhere to those of fishes. They will at times stick to the backs of carp in ponds; and, fixing their fingers in the corner of each eye, in this manner they are often caught together, the carp being blinded, and very much emaciated. Whether this act proceeds from the desires of the Frog when disappointed of its proper mate, or whether it be the effect of a natural enmity subsisting between Frogs and fishes, is not easily determined. However, the following story, as related by Walton, might incline us to adopt the latter opinion. 'As Dubravius, a bishop of Bohemia, was walking with a friend, by a large pond in that country, they saw a Frog leap on the head of a pike, which lay very quietly by the shore-side; when the Frog having expressed malice or anger by his swollen cheeks and staring eyes, did stretch out his legs, and embrace the pike's head, and presently reached them to his eyes, tearing with them and his teeth those tender parts: the pike, irritated with anguish, moved up and down the water, rubbing himself against weeds, and whatever he thought might rid him of his enemy; but all in vain, for the Frog did continue to ride triumphantly, and to bite and torment the pike till his strength failed; and then the Frog sunk with him to the bottom of the water. Presently the Frog appeared again at the top, and croaking, seemed to rejoice like a conqueror; after which, he immediately retired to his secret hole. The bishop, who had beheld the battle, called his fisherman to fetch his nets; and by all means to get the pike, that they might declare what had happened. The pike was drawn forth, having both his eyes eaten out; at which, when they began to wonder, the fisherman assured them he was certain that pikes were often so served.'

The Frog affords the curious in microscopical observations a very beautiful view of the circulation of the blood; but the method of examining it to advantage was first discovered by the ingenious Dr. Stuart. This gentleman made use of the solar microscope in a particular manner adapted to that purpose. He opened the skin of the belly from near the anus to the throat; and then giving it a little snip side-ways, both at top and bottom,

and sticking a fish-hook into each corner of the skin, it was easily extended before the microscope; and exhibited on the screen the most beautiful view imaginable of the veins and arteries of the skin, with the blood circulating through them. In the arteries, thus viewed, the blood is seen to stop, and recede a little at every pulsation by the dilatation, and rush forcibly on again by the contraction of the heart; while in the veins it ever keeps the same equable and uniform current, with a surprizing rapidity; and, when the screen is removed farther back, and the object by that means more enlarged, the alternate expansion and contraction of the sides of the arteries are very visible. After this, the abdomen of the Frog being opened, and its muscles extended before the microscope in the same manner with the skin, their structure is beautifully displayed, being all composed of bundles of transparent strings of fibres, lying parallel to each other, and joined by a common membrane. When this has been sufficiently examined, a part of the entrails being pulled out and extended with the mesentery, one of the finest views of the circulation of the blood is exhibited: that fluid is seen passing through numberless vessels at one and the same instant, in some one way, and in others directly contrary. Several of the vessels are thus magnified to more than an inch in diameter, and the globules of blood running through them appear nearly as large as peppercorns; while, in many of the minutest vessels, only single globules are able to find a passage, and that too by changing their shape into an oblong spheroid. The pulsation and acceleration of the blood in the arteries are also very agreeably shewn by this means. As the animal, under examination, becomes languid and near expiring, the blood in the arteries will often stop on a sudden, and seem as if it were coagulating, and then run back for some time; after which it will again recover its natural course with a great deal of rapidity. A due consideration of the foregoing particulars may possibly account for the intermissions, starts, and irregularities, perceived in the pulses of persons at the point of death.

FROG, EDIBLE. This animal differs from the common Frog in having a high protuberance on the middle of the back, which forms a very sharp angle. Its colours also are more vivid, and its marks more distinct, being a pale or yellowish green, impressed with rows of black spots from the head to the rump. Both this and the common Frog are eaten in some countries. 'In the markets at Paris,' says Pennant, 'we have seen whole hampers full, which the venders were preparing for the table, by skinning and cutting off the fore-parts, the loins and legs only being kept.'

FROG, GREEN, OR SMALL TREE-FROG. This species is distinguished from the other kinds by their colour, the minuteness of their size, and by their sitting on the leaves of trees. In Germany and Switzerland they are frequently seen on trees and shrubs in the evening; and, from their note, they might be mistaken for birds rather than Frogs. They seem to be the cicadæ of Virgil.

FROG OF MARTINICO. This animal, which is the most beautiful of the genus, is of a grey colour with yellow and black spots or stripes; and lives solely in the woods, where it makes a noise in the night-time somewhat similar to the barking of a dog.

These Frogs are above a foot in length, without

out including their thighs, which are large and fleshy. The French speak highly of the whiteness, tenderness, and delicacy of their flesh; and, in dressing them, they waste only their heads. They fricasee them like chickens, and boast that strangers really take them for such: and the negroes hunt them in the night-time with lighted sugar-canes that have passed through the mill.

Some naturalists observe, that these Frogs bring forth in hollow trees; and that they first emit a quantity of white froth, about the breadth of a man's hand, on which they lay six, eight, or a dozen eggs, more or less, of the size of coriander seeds, and of an orange colour. It is uncertain whether they sit on them or not; however, it is well known that the females never quit the place where they lay their eggs till they are hatched.

FROG, CAROLINA. In this country there are several species of Frogs; but the most singular is the Bull-Frog, so called from the exact resemblance which it's croaking bears to the voice of that animal. These Frogs are very large; and, according to some authors, afford as much flesh as a full-grown pullet. Catesby says, that they are of a brown colour, having a great number of dark spots mixed with a greenish red. The eyes are brown; the irides are yellow; and under the eyes there are two round ears, covered with a thin membrane.

FROG, AMERICAN, OF SEBA. This species has an air-bladder on each side of the lower jaw, which in hot weather is replete with that element. It is of a bright reddish colour with deep red spots; and it's claws are large, and shaped like the leaves of scurvy-grass. This Frog begins to croak with uncommon ardour about sun-set.

FROG, BRAZILIAN. The head of this creature, which is large, resembles that of the toad; and the body is of a reddish ash-colour interspersed with red warts.

FROG, SEA, AMERICAN. This species is of a prodigious size; the feet, if we may credit Seba, being a quarter of a yard in length. The whole body, except the head, is an ash-coloured brown, marked with great and small warty spots of a faint greyish colour below, and of a yellowish ash-colour on the apex. The back, and the space between the shoulders, rise into a prominence, and seem to be divided from the other parts by whitish lines. On the fore-feet there is a kind of armour, of a bright ash-colour speckled with black; the head is barred with small reddish streaks; the eyes are large and sparkling; the ears are round and short; the tongue is large, it's fore-part adhering to the lower jaw; the fore-feet have each four toes, composed of four joints; and the toes on the hinder feet are large, and armed with claws connected by a thin membrane.

FROG-FISH. An appellation given to the *rana piscatrix*, or lophius; called in England the sea-devil and the angler.

FROG-FISH OF SURINAM. This singular animal is produced by the transformation of a Frog into a Fish. The Frog, in it's first state, is spotted with brown, yellow, and green, which colours are paler on the belly; the hinder feet are webbed like those of the goose; but the fore-legs are destitute of webs. The first metamorphosis this creature undergoes, is the protrusion of a tail; after which it gradually acquires the shape of a Fish, the two fore-feet decreasing and wasting by degrees, and then the hinder legs, till at length the Frog is transformed into a perfect Fish. The Indians and

Europeans of Surinam call these Fishes jackies: they are cartilaginous, of a substance like that of the mustela, and esteemed very delicate food; and a bone or cartilage runs down the back, from which spread small bones all over the body. These Fishes are first of a darkish colour, and afterwards grey; they are adorned with beautiful scales; and the body of each is divided into two equal parts.

FROTH WORM, OR CUCKOW-SPIT.

An appellation given to a white froth or spume, very common, during the spring and summer seasons, on the leaves and stalks of various plants. Though all writers on vegetables have perhaps noticed this froth, few of them, till very lately, have understood it's origin. Many imagined it to be an exhalation from the earth; some esteemed it the saliva of the cuckow; and others, the extravasated juices of the plants, or a kind of hardened dew. But all these opinions are equally erroneous: the froth in question undoubtedly proceeds from a small inclosed insect, with an oblong, obtuse body, a large head, and small eyes. This animal emits the spume from the anus, and other parts of it's body; and, after undergoing several changes in this situation, it bursts into a winged state, and flies abroad in quest of it's mate. It has four wings, the two external ones being of a dusky brown colour marked with two white spots.

FRUGIVOROUS. An epithet used by naturalists to express such animals as subsist principally on fruits.

FRUIT-FLIES. A name given to a species of small black Flies found in vast numbers among fruit-trees in the spring season. Lewenhoeck, who preserved some of these insects for his microscopical observations, observed that they did not live longer than a day or two; but that the females, during this period, laid a great number of longish eggs. Those gardeners who suppose that these Flies wound the leaves of trees, labour under a mistake: it is true, indeed, that they feed on their juices, but they have no weapons with which they can extract them; they subsist on such as are naturally extravasated; and, when these are insufficient, they haunt those places to which pucerons resort, and partake of the fruits of their labour.

FRUSO. An appellation given by some naturalists to the *Coccothraustes Cristata Indica*, or Virginian nightingale.

FUCA. A fish nearly allied to the genus of blenni; the phycis of Aristotle and Ælian, and the tinca marina of Salvian and Rondoletius.

FULICA. The classical name for the Coot.

FULIGULA. A name given by Gesner to a species of duck common to several parts of the world.

FULLO. An appellation given by Gaza and others to the tench, or black cyprinus; called by the Greeks psylon.

FULMAR. A species of procellaria, or petrel, that inhabits the isle of St. Kilda, one of the Hebrides, where it appears in November, and continues the whole year, except during the months of September and October. It lays a large white egg, and hatches it's young about the middle of June.

This bird is extremely beneficial to the islanders; inasmuch as it supplies them with oil for their lamps, down for their beds, a delicacy for their tables, a balsam for their wounds, and a medicine for their diseases. It is also an infallible prognosticator of the weather, particularly of the change of

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wind: if it comes towards the land, no west wind is to be expected for some time; and the contrary when it returns, and keeps at sea.

The Fulmar, like all the petrels, has a peculiar faculty of spouting from it's bill, to a considerable distance, a large quantity of pure oil; which it discharges, by way of defence, in the face of any person who attempts to seize it. In order to preserve this oil, the natives always endeavour to catch this animal by surprize: but sometimes it spurts this treasure in their faces while they are engaged in the pursuit of other game; and it is said, that to a certain gentleman this unexpected salute really proved fatal, by making him suddenly quit his hold. This oil, exclusive of domestic purposes, is said to be very serviceable in rheumatic cases.

The Fulmar is larger than the common gull; the bill is very strong, yellow, and hooked at the extremity; the nostrils are composed of two large tubes, lodged in one sheath; the head, neck, belly, and tail, are white; the back and coverts of the wings are ash-coloured; the quill-feathers are dusky; the legs are yellow; and, instead of a back toe, it has only a sort of straight spur.

The Fulmar feeds on the blubber or fat of whales, and other animals; which being soon convertible into oil, supplies it with the constant means of defence, as well as of provision for it's young, which it nourishes by injecting that fluid into their mouths. It is likewise said to feed on sorrel, which probably helps to qualify the untuous diet on which it principally subsists.

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Frederic Martens, who saw vast numbers of these birds at Spitzbergen, observes, that they are very bold, hovering round the whale-fishers in large flocks; and that when a whale is taken, in spite of all endeavours to the contrary, these creatures will perch on it, and pick out large lumps of fat, even while the animal is alive. Whales are also frequently discovered at sea by the multitudes of Fulmars which hover over them; and, when a single whale happens to be wounded, prodigious numbers of these birds pursue it's bloody track.

FUMER. An appellation sometimes given to the pole-cat.

FUNDULUS. A name used by various authors to express the cobitis, called in England the loach.

FUNDULUS is also applied by Schoneveldt, and some others, to signify the common gudgeon. The absurdity and confusion of giving two fishes the same name, which in fact is peculiarly appropriated to neither, are very evident in this, and numerous other instances which fall under a naturalist's notice: thus, even the word Gobio, the common appellation of the gudgeon, confounds that fish with another very different genus; and Artedi deserves some commendation for clearing up this intricacy, by referring the gudgeon to the genus of cyprinus; giving it the specific name of the five-inch spotted cyprinus, with the lower jaw shorter than the upper, and with two cirri or beards at the mouth.

FURO. An appellation given by some authors to the ferret, called also furunculus and ictis.

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GAD-FLY. A species of oestrus, having spotted wings, a yellow breast, a brown band, and a yellow abdomen terminating in a black point. This insect is sometimes called the Dun-Fly, Ox-Fly, and Breeze-Fly. Like the gnat, when examined by the microscope, it appears to have a long proboscis with a sharp dart, and two darts sheathed within it, which penetrate the skins of animals, and form a passage for their blood, on which the insect feeds.

The eggs of the Gad-Fly are sometimes deposited on the skins of various quadrupeds, particularly those of rein-deer, where they often occasion incurable disorders. In general, however, these eggs are laid in the water, each of which there produces a remarkable maggot, of a long flattened figure, and a brown colour, with a pencil of fine downy hairs at it's tail, which it spreads into a circular form on the surface of the water, whilst it's head is plunged under it in search of food. In the act of descending, these hairs being drawn together in an oval form, and made to inclose a bubble of air, this assists the insect in rising again; and, should this bubble happen to burst, the creature squeezes another out of it's body, in order to supply it's place. The snout of this maggot has three divisions, whence are darted three

little pointed weapons resembling the tongues of serpents.

GADUS. A genus of the malacopterygious or soft-finned fishes, in the Artedian system; the characters of which are these: the branchiostege membrane on each side contains seven bones of a somewhat cylindric shape; the back, in some species, has three fins, and in others only two; and the head is generally compressed, but in some it is depressed.

Artedi enumerates the following discriminations: those which have three fins without any cirri, of which there are three species, the whiting, the cole-fish, and the whiting-pollack; those which have three fins with cirri, to which belong the cod-fish, the haddock, the pouting, and the Cornish poor; and those which have two fins on the back, comprehending the hake, the ling, the eel-pout, and the bearded-gadus with a furrow at the first of the two back-fins, called in Cornwall the whistle-fish.

In the Linnæan system, the Gadus is a genus of the jugulares. It's characteristics are these: it has a smooth head; seven slender branchiostegeous rays; an oblong body with deciduous scales; the fins all covered with a common skin; and the ventral fins slender, and terminating in a point.

GADWAL,

GADWAL, or **GRAY**; the *Anas Sterpera* of Linnæus. See **DUCK**, **GADWAL**.

GAGNOLA. The Spanish appellation for a species of the *Acus*, or *Syngnathus*, of Artedi. The particular species described under this name is called by that naturalist the hexagonal-bodied syngnathus with a pinnated tail. It seems to be the *acus Aristotelis*, or *acus secunda*; and is known in England by the several names of the needle-fish, the trumpet-fish, and the tobacco-fish.

GAIDEROPSARUS. A name given by some naturalists to a fish of the truttaceous kind caught in the Mediterranean, and more usually called *callarias*.

GALADES. An epithet given by Rondolelius to a species of chama remarkable for its milky whiteness, and derived from *Galé*, Milk. This species is extremely elegant.

GALBULA. A bird of the thrush kind common in Italy and Germany. It is very remarkable for the elegant structure and hanging position of its nest; and is thence called by some *picus nidum suspendens*; and, by others, *oriolus*, *chloræus*, and *icterus*; being supposed to be the *icterus*, or jaundice-bird, of Pliny and the ancient naturalists.

This bird is somewhat larger than the common thrush. The beak, which is about half an inch long, is red; the wing-feathers are black; but some are tipped and edged with white, and others are varied with yellow. The female is less beautiful than the male, her colours being more dusky. The *Galbula* is a bird of passage, feeds on insects, and is esteemed a great delicacy.

GALEA. A genus of *echinodermata*, or sea hedge-hog, shaped like a large elevated helmet, composed of several transversely joined plates or *assulæ*, and covered with very small and rough tubercles, which appear like small *granulæ*. When found fossil, this genus is called the helmet-stone; and is marked with ten rows of double lines, either crenated or punctuated, running from the top to the base.

Three species of this genus have been described by naturalists; one with a scutated head having an oblong pentagonal plate like a shield on its summit; a second with a naked head, and destitute of a scutum; and a third having the *teniæ* laurated.

GALEA PISCIS. An appellation given by Gefner and others to the fish more generally called *mustela alia*; and, by Artedi, made a species of the *blenni* with four bifid beards under the throat.

GALEA VENETORUM is also sometimes used to signify the common *mustela*.

GALEETO. A fish of the genus of *blenni* in the Artedian system, distinguished by the name of the *blennus* with the upper jaw longer than the under, and the top of the head acuminate. Rondolelius calls it the *alauda non cristata*; and, in England, it is known by the name of the *mulgranoc*, and *bullcard*. Its colour is greenish, without any variegation in some; but, in others, a number of faint blue transverse lines are disposed on the back, the sides, and the fins; the intermediate spaces between these lines being of a reddish brown hue on the back. It is a very vivacious animal; and, like the eel, lives many hours after being taken out of its native element. It is caught among rocks and stones about the shores of the Mediterranean, and also on some parts of the British coasts.

GALEUS CANIS; the *Squalus Galeus* of Linnæus. See **CANIS GALEUS**.

GALEUS LÆVIS; the *Squalus Mustelus* of Linnæus. The smooth hound-fish, so called in order to distinguish it from the *Galeus spinax*, which is furnished with spines on its back. The back and sides of the smooth hound-fish are ash-coloured; the belly is white; the body is long and round; the end of the nose is obtuse, and projects considerably beyond the mouth and eyes; and the tail is bifid. It has two dorsal fins, and two pair of ventral fins; and the asperities of the jaws supply the place of teeth.

GALEUS RHODIUS. A name given by Athenæus, and some others of the ancients, to a very large and delicate fish, which Schoneveldt conjectures to be the sturgeon; and, in confirmation of this opinion, adduces several powerful arguments.

GALEUS ACANTHIAS, or **SQUALUS SPINAX**. A fish of the shark kind, called in England the picked dog-fish, and the hound-fish. The body is long, round, and destitute of scales, but covered with a skin so extremely rough, that several artists use it in polishing their works. The back is of a brownish ash-colour; the belly is white, and somewhat smoother than the rest of the body; the nose is long, and rounded at the extremity; the pupil of the eye is black, of an elliptic figure, and placed transversely; and the mouth, which is situated near the middle of the snout, has two rows of minute teeth. This fish is common in the Mediterranean and English seas.

GALEUS STELLATUS, the Starred Hound-fish. A species of dog-fish remarkably variegated with white spots shaped like stars.

GALEXIA. An appellation given by Galen, and some of the more ancient writers, to the common lamprey.

GALL-INSECT. A class of animals of various shapes, sizes, and colours, found on the stalks and branches of trees, shrubs, and perennial plants.

The insect which forms and resides in the Gall-nut is furnished with a certain implement, by means of which it penetrates into the bark of the tree, or into that spot which is just begun to bud, and there sheds a drop of corrosive fluid into the cavity. Having thus formed a receptacle for its eggs, it there deposits them, and dies soon after. The heart of the bud being thus wounded, the circulation of the nutritive juice is interrupted; and the fermentation thereof, with the poison injected by the fly, burns the adjacent parts, and alters the natural colour of the plant. The juice or sap, turned back from its natural course, extravasates, and flows round the egg; after which it swells and dilates by the assistance of some bubbles of air, which gaining admission through the pores of the bark, run in the vessels with the sap. The external coat of this excrescence is dried by the air, and assumes a roundish figure. This little ball receives its nutriment, growth, and vegetation, as the other parts of the tree, by slow degrees, and forms what we call the Gall-nut. The worm which is hatched within this substance undergoes various transformations, till at last it acquires wings, and emancipates itself from its confinement.

The Gall-Insects, whose spoils are converted to many useful purposes, are bred on a kind of Asiatic oak. But, besides these, animals of a similar kind are met with on a variety of other trees, shrubs, and plants. Many, however, have referred them to the vegetable kingdom, and denied their relation to the animal; and, among the rest, the accurate

rate Count Marfigli, after very attentively examining the Gall-Insects of one species, remained seemingly convinced that they were real vegetable excrescences.

Indeed, these creatures have so little about them to attract the observation even of the curious, that they might probably have remained much longer unregarded, were it not that they multiply so prodigiously on some fruit-trees: the peach-tree, in particular, is sometimes in a manner covered with them, and these of more than one species; some being of the globular kind, and others of the boat figure. The branches, thus covered, look rough and scabby; and gardeners, sensible that, whatever the substances are, they must be nourished at the expence of the juices of the tree, have set about inventing means for their destruction. Orange-trees, which are frequently full of these insects, first excited the attention of the more curious observers of such minute parts of nature. These are principally of that kind whose figure represents an inverted boat; and on them Messr. de la Hire and Sedileau made a set of curious experiments, which were published in the Memoirs of the Academy of Paris. But though it must be confessed that many species of these little animals are injurious to fruit-trees, there are some kinds of them whose use and value fully compensate for this loss; since it is from one species of these little creatures that the inhabitants of some places make such great gains, gathering a harvest of them without the expence of planting or cultivating. The kermes, so well known by name, though so little truly understood, is of this kind; and to it both the physician and the dyer are under very considerable obligations.

Lister was, perhaps, the first who discovered the Gall-Insects. He found these animals on the plum, cherry, vine, laurel, and many other trees, and calls them the patellæ of these trees. He appears to have been well apprized of their animal origin; and, in the year 1671, discovered that some of them would strike a carnation red colour with ley of ashes, affording not only a beautiful, but also a permanent tinge.

GALL INSECT FLY. This animal, which is the male of the Gall-Insect species, is furnished with two wings, and possesses several peculiarities. As a great resemblance exists between these Flies in all the Gall-Insect class, a description of the peach Gall-Insect may give a proper idea of all the rest. This animalcule, when examined with the assistance even of the best glasses, exhibits nothing on the under part of it's head analogous to the organs of other Flies, destined to convey their nourishment; nothing which bears the most distant resemblance to the trunks of other two-winged Flies; nor any thing which can be compared to teeth. Where the teeth, if any, ought to be placed, there are only two black, shining hemispheric bodies, in every respect resembling eyes. Exactly opposite these, on the other side of the head, and near the bases of the antennæ, there are two other similar bodies, which, notwithstanding the singularity of their situation, cannot be taken for any thing else but eyes. It would therefore seem, that this Fly has no organs for the reception of aliments, but has two eyes in their stead. However, the want of these organs is by no means singular with regard to the insect world, since moths and butterflies afford instances of it: many of these may be seen, as soon as they are produced from the chrysalis, in an apt state to propagate their species, and deposit their eggs;

and this great end of their existence being achieved, they have no farther occasion for life, nor any means for it's support: and probably the case is the same with respect to these Flies, which, as soon as they are disengaged from their coverings, search out and fecundate the females; which act finishes the business of their lives.

Another curious circumstance attends this species; namely, that all the Flies of this kind are produced from their shells backwards; whereas all other species of two-winged Flies are produced with the fore-parts of their bodies first: and, if we cannot assign a reason for this singularity in the production of the Fly now under consideration, we can, however, easily perceive, that every thing is prepared and destined for it's convenience. In the nymphs of other Flies, all the legs are constantly applied close to the body; whereas, on the contrary, in the nymph of the Gall Insect Fly, the legs placed next the head, or the first pair, are constantly ranged upwards, and each of them embraces one side of the head. The uniform position of these legs in this direction is a proof that it is the order and course of nature in the production of the animal: nor are they improperly thus placed in a species which, contrary to all others, is to force itself backwards out of it's shell, since they assist the creature in it's operations; and, as the anterior parts of the cases of other Flies naturally and easily open, to give passage to the animals, so also does the posterior part of this.

GALLEY-FISH; the Medusa of Linnæus. This animal, which is referred to the insect tribes by Linnæus, to the eye of a heedless spectator seems a transparent bubble swimming on the surface of the sea, or like a bladder variously and beautifully painted with vivid colours, where red and purple predominate as variously opposed to the beams of the sun. It is, however, an actual Fish; the body of which is composed of cartilages, and it's skin filled with air, which thus keeps the animal floating on the surface of the water, according as the waves and winds happen to drive. Sometimes it is seen dashed on the shore by one wave, and repelled by the next. Persons who walk along the beach often tread on it; and the bursting of it's body yields a considerable report.

The Galley-Fish has eight broad feet with which it swims, or which it expands in order to catch the air, after the manner of a sail; and, by means of these legs, which possess an adhesive quality, it fastens itself to whatever it meets. Labat informs us, that he could never discover whether it moved when on shore, though he tried every expedient to make it stir; but only observed that it strongly adhered to whatever substances he applied it.

These creatures are very common in America, particularly along the coasts of the Gulph of Mexico, where they grow to the size of a goose-egg; and, whenever the shore is unusually covered with them, it is deemed the certain prognostic of a storm. They are generally seen floating; and no efforts can sink them to the bottom. All that appears above water is a bladder, clear and transparent as glass, and shining with the most vivid colours of the rainbow: beneath the surface are four of the feet already mentioned, which serve as oars; while the other four are expanded for sails. But the most extraordinary circumstance attending this creature, is the violent pungency of the slimy substance with which it's legs are smeared: if the least quantity

quantity of this only touch the human skin, so caustic is it's quality, that it burns like hot oil. The pain occasioned by it is very acute during the heat of the day, but ceases towards the cool of the evening. It is very probable that, from feeding on these creatures, several of the West Indian fishes contract their poisonous quality.

GALLINÆ. In the Linnæan system of zoology, this constitutes a large order of birds; the general characteristics of which are these: the beak is conic and bent; the upper mandible is arched, and extends beyond the lower; the nostrils are half covered with a cartilaginous convex membrane; the feathers of the tail exceed twelve in number; and the feet are cloven, but the exterior and interior toes are connected to the first joint of the middle toe by a small membrane. The peacock, the dodo, the turkey, the pheasant, the Guinea-hen, the crax, and tetrao, belong to this order.

GALLINA MOSAMBICANA. A name under which Nieremberg has described a kind of fowl, which he says has not only black feathers, but also black flesh and black bones; but this account Ray has fully exploded.

GALLINA PISCIS. A fish of the cuculus kind, more usually known by the name of the *Corax Piscis*.

GALLINACEOUS. An epithet given to a class of birds of the pheasant kind, including the common cock and hen; the characters of which are these: their beaks are short, strong, and somewhat crooked, being adapted to the picking up of corn, the usual food of the whole species; their bodies are large, thick, and fleshy; their wings are short, and ill adapted to extensive flights; they breed a numerous progeny; they build their nests on the ground; their young immediately provide for themselves; and, lastly, some are furnished with long spurs behind their legs.

GALLINAGO. A general term for heath-fowls; such as the woodcock, black-cock, &c.

GALLINAGO MINOR. See *SNIPES*.

GALLINE. A Massilian appellation for the flying-fish, called by authors *milvus* and *lucerna*. It is a species of *trigla*; and is distinguished by *Artemis* under the name of the *trigla* with the snout somewhat bifid at the end, and the lateral lines forked towards the tail.

GALLINULA. A genus of birds which swim in the water, and yet are destitute of webbed feet, or any membranes joined to their toes which might augment their breadth. Their bills are thick at their bases, sloping to their points; their upper mandibles, which extend far up their foreheads, are callous; their wings are short and concave; their bodies are compressed; and their toes are long, and divided to their origin. The common moor-hen, together with a great number of other birds, both foreign and domestic, such as the water-rail, the *grinetta*, and the *ochropus*, are of this genus.

GALLINULA ÆRYTHROPUS. A term used by many authors to express the bird commonly called the red-shank in England.

GALLINULA HYPOLEUCOS. A name given by some naturalists to the beccafine, or, as it is generally called in England, the sand-piper. See *TRINGA*.

GALLINULA MELAMPUS. An appellation given by Gesner to a German bird, called, in the language of that country, *rotknuffel*.

GALLINULA RHODOPUS, PHCENI-

COPUS, AND OCHROPUS. Names by which Gesner, and some other writers, have distinguished the common *tringa*; a bird whose legs, at different ages, and in the different sexes, are greenish, yellowish, and reddish.

GALLINULA SERICA. A term indiscriminately used by many authors to signify the *grinetta* and the water-rail; both birds of the moor-hen kind, but considerably smaller.

GALLINULE, COMMON. This bird, called also the moor-hen, or water-hen, weighs about fifteen ounces; it's length, to the end of the tail, is fourteen inches, and it's breadth twenty-two; the crown of the head, the hind-part of the neck, the back, and the coverts of the wings, are of a fine deep olive-green colour; the under-side of the body is cinereous; the chin and belly are mottled with white; the quill-feathers and the tail are dusky; the exterior web of the first primary feather, and the ridges of the wings, are white; the vent is black; the feathers just beneath the tail are white; and the legs are dusky green. The plumage of the female is much less brilliant than that of the male; and it is likewise inferior in size. During the season of love, the plumage of this bird assumes a beautiful olive gloss, and the bill becomes a full, bright red; circumstances which naturalists in general have overlooked, though sufficiently striking.

The Gallinule feeds on grassy banks and other situations in the vicinity of fresh waters; and even in the waters, provided they are covered with weeds. It builds in low trees and shrubs by the water-side, breeding twice or thrice a year; and, when the young are grown up, they are always compelled to shift for themselves. The female lays seven eggs of a dirty white colour, slightly spotted with rust. It strikes with it's bill like the hen; and, during the spring, has a shrill call. In the act of flying, it hangs down it's legs; and in that of running, flirts up it's tail very frequently. The bottom of the toes being flat and broad, it is thereby enabled to swim; and, from this part of it's conformation, it seems to be the bird which connects the cloven-footed aquatic fowl with the fin-toed.

GALLINULE, SPOTTED; the *Rallus Porzana* of Linnæus. This species, which is migratory in Great Britain, frequents the sides of small streams, where it conceals itself among the bushes. It's length is nine inches, and the expansion of it's wings fifteen; it's head is brown, spotted with black; it's neck is a deep olive, spotted with white; and from the bill, beyond the eyes, there is a broad grey bar. The plumage of it's back is black and olive; the scapulars are olive-coloured, finely marked with two small white spots on each web; and it's legs are of a yellowish green hue.

GALLOWAY. A peculiar breed of horses, so called from the county of Galloway in Scotland, where they principally abound. Tradition reports, that this kind of horses sprung from several Spanish stallions, which swam on shore from some ships wrecked on the coast, belonging to the famous Armada; and, propagating with the mares of the country, furnished the kingdom with their posterity. These horses are of a middling size, strong, active, nervous, and much esteemed.

GALLUS. The classical name of the cock.

GALLUS GRUNNIENS. An East Indian fish approaching to the nature of the *scorpius marinus*, and called by the Dutch *knone haen*. The

body is thick and rounded; the skin is destitute of scales, but rugged, and full of tubercles spotted and variegated with short streaks of a blackish hue; the head is large and thick, and extremely full of excrescences; the nose is large; the eyes are red; the tail is obtuse; and the flesh is reckoned very delicious. When this fish is first taken out of the water, it makes a very singular grunting noise; and hence it receives it's name.

GALLUS MARINUS. An appellation given by some naturalists to the doree; a fish more commonly known by it's classical name, faber.

GALLUS MARINUS, is also a name by which some authors have distinguished the orbis piscis.

GALLY-WORM, the Julus of naturalists. An insect of the centipede kind, of which there are several species. They are furnished with more feet than any other insects; and their bodies are composed of a great number of rings. Some of them are smooth, and others hairy; some are of a yellow colour, others are black, and others again are brown. One species has a black head, a back of a golden yellow colour, a belly of a blueish silver colour, and a vast number of feet like hairs. A second species is entirely black, except a white line running from the head to the tail along the middle of the back. A third kind has a reddish head, and feet of the same colour; the body is a dull yellow; and the feelers, as well as the hairs near the tail, are livid. And a fourth species is of a reddish black hue, except that the feet and feelers are of a lighter colour. Some of these insects lie hid in the moss growing on the barks of trees; and others under stones, and among rubbish. Mousset observed two species of the hairy kind; one of which was somewhat above an inch long, and had a tapering body of a whitish colour, but the hairs were black and very short: the back and belly of the other species were of a livid colour, spotted with an unpleasing yellow; the mouth was somewhat reddish; the eyes were black; and the hairs were grey.

All these animals, when touched, either contract, or roll themselves up into balls; but they do not appear to be venomous, as many have supposed, having been frequently handled and irritated without any dangerous consequences.

GALLY-WORM, SHINING. This insect, which is frequently found on heaths, may be easily distinguished by it's glow-worm-like lustre. It is a native of Great Britain, and various other European countries, as well as of some parts of America.

GALLY-WORM, BROWN. This species has a hundred legs on each side, and grows to the length of two inches. The body is brown; a double line of an iron-grey colour runs along the back; the back is roundish; the belly is smooth; the skin is somewhat glossy; and the feelers, which are short, consist of five joints. It generally resides a little below the surface of the earth.

GALLY-WORM, GREY. This creature is about three-quarters of an inch in length, and is furnished with a hundred and twenty feet on each side; it's back is roundish; it's belly is flat; and it's colour is a pale grey, except that two iron-grey lines appear on it's back, and that every joint of it's body is longitudinally streaked. It consists of sixty joints; and is furnished with whitish feet. Ray calls this insect the Gally-Worm marked with livid and white circles, found under large stones, and on old trees.

GALLY-WORM, RED. Ray denominates this

species the long Gally-Worm. It measures one inch and a half; the body is very slender, and of a reddish colour; the back and belly are depressed; and the feet are yellowish, of which there are seventy on each side.

Linnaeus mentions only three species of these insects; namely, that with seventy, that with a hundred, and that with a hundred and twenty feet on each side.

GAMBET, OR GAMBETTA. A bird somewhat resembling the common red-shank. The head, neck, and breast, are grey, and full of brown spots, which are largest on the back, and smallest on the head; the back is grey, a little inclining to a reddish brown colour on it's lower part, and on the wings; the belly is white; and the beak is black. This bird is common in Italy, and some other countries.

Pennant describes one of this species, the tringa Gambetta of Linnaeus, which was shot on the coast of Lincolnshire, and was about the size of the green-shank. The head, back, and breast, were of an ash-brown colour, spotted with dull yellow; the coverts of the wings and scapulars were cinereous edged with yellow; the primaries were dusky; the shaft of the first feather was white; the tail was dusky bordered with yellow; and the legs were yellow.

GAME, BLACK. See GROUSE.

GAME-COCK. See COCK.

GAME, RED. See GOR-COCK.

GAME, WHITE. See PTARMIGAN.

GANG-FISH. A name given by some authors to a small fish caught in the German lakes, and exported in pickle into many parts of the world; but more generally known by the appellation of Lavaretus. The Gang-Fish is a species of the coregonus; and, in the Arterian system, is distinguished by the name of the coregonus with the upper jaw longest and flat, and with fourteen rays in the back-fin.

GANNET, the Pelicanus Baffanus of Linnaeus; called also the soland goose. This bird, which is about the size of the tame goose, weighs nearly seven pounds; and is upwards of three feet in length, and six in breadth. The bill is six inches long, and straight almost to the point, where it inclines downwards; and the sides are irregularly jagged, that the creature may hold it's prey with greater security. About an inch from the base of the upper mandible there is a sharp process, which projects forwards; a long furrow, reaching almost to the end of the bill, occupies the place of the nostrils; and the whole bill is of a dirty white hue tinged with ash-colour. The tongue is small, and placed low in the mouth; and a naked skin of a fine blue colour surrounds the eyes, which are a pale yellow, and full of vivacity, this bird being remarkable for the quickness of it's sight. From the angle of the mouth proceeds a narrow slip of black bare skin, extending to the hind-part of the head; beneath this skin there is another, which, like the pouch of the pelican, is dilatable, and of a sufficient size to contain five or six entire herrings, which, during the breeding season, it carries at once, to support it's mate and young. The neck is extremely long; the body is flat, and very full of feathers; the crown of the head, and a small space on the hind part of the neck, are buff-coloured; and the rest of the plumage is white, except the bastard-wing and the greater quill-feather, which are black. The legs and toes are black; but the fore-part of both are marked with a stripe

a stripe of fine pea-green; and the tail is composed of twelve sharp-pointed feathers, the middlemost being the longest.

During their first year, these birds are of a dusky hue, speckled with numerous triangular white spots; and their colour strongly resembles that of the speckled diver.

Each Gannet, if not disturbed, will lay only one egg throughout the year; but if that be taken away, it will lay another, and then a third: a wise provision of nature to prevent the extinction of the species by accidents, and to supply the inhabitants of those places where they breed with food. The egg is white, and smaller than that of the common goose; but the nest is large, and composed of grass, sea-plants, or any other substances which the Gannet finds floating on the water.

As these birds subsist entirely on fish, they frequent those uninhabited islands where their food is found in plenty, and where they are undisturbed by the human race. The isle of Ailsa, in the firth of Clyde; the rocks adjacent to St. Kilda, a small island near the Orkneys; the Shelig islands, off the coast of Kerry in Ireland; and the Bass isle in the firth of Forth; seem to be their favourite resorts: but in the last-mentioned island they are seen in the greatest abundance. 'There is a small island,' says Dr. Harvey, 'called the Bass, not more than a mile in circumference. The surface is almost wholly covered, during the months of May and June, with their nests, their eggs, and their young: it is scarcely possible to walk without treading on them. The flocks of birds on the wing are so numerous, as to darken the air like a cloud; and their noise is such, that one cannot be heard without difficulty by the person next to him. When one looks down on the sea from the precipice, its whole surface seems covered with infinite numbers of birds of different kinds, swimming and pursuing their prey. If, in sailing round the island, one surveys its hanging cliffs, in every crag and fissure of the broken rocks may be seen innumerable birds, of various sorts and sizes, more than the stars of heaven when viewed in a serene night. If they are viewed at a distance, either receding or in the approach to the island, they seem like one vast swarm of bees.'

Nor are these fowls less frequent on the rocks of St. Kilda. Martin assures us, that the inhabitants of that small island annually consume near twenty-three thousand young birds of this species, besides an amazing quantity of their eggs: on these they principally subsist throughout the year; and, from the number of these visitants, make an estimate of their plenty for the season. They preserve both the eggs and the fowls in small pyramidal stone buildings, covering them with turf-ashes, to prevent the evaporation of their moisture. This, however, is dear-bought food, being earned at the hazard of their lives, either by climbing the most difficult and narrow paths, where, to appearance, they can scarcely cling, and that too at an amazing height over the raging sea; or else, being lowered down from above, they collect their annual provision hanging in the midway air, placing their sole dependence for safety on the uncertain footing of one person, who holds the rope by which they are suspended at the top of the precipice. The young of these birds constitute a favourite dish of the Scotch in general; and at Edinburgh they are sold at one shilling and eight-pence each, roasted, and served up as a whet, a little before dinner.

The Gannet is a bird of passage. Its first appearance in those islands is about the month of March; and it quits them either in August or September, according as the inhabitants take or leave its first eggs. Its motions may generally be determined by the migrations of the immense shoals of herrings which at that season pour down through the British Channel, and supply all Europe. The Gannet assiduously attends the shoals in their passage, accompanies them in their whole circuit round our island, and shares with our fishermen in this exhaustless banquet. Wherever this fowl is seen, it is sure to announce the arrival of the finny tribe to the fishermen, who immediately prepare their nets, and take the herrings by millions at a draught.

The Gannet migrates as far south as the mouth of the Tagus in quest of food, being frequently seen off Lisbon during the month of December, plunging for sardinæ, fishes resembling (if not actually the same with) pilchards.

'I have observed, in Caithness,' says Pennant, 'their northern migrations in the month of August, and have seen them passing the whole day, in flocks from five to fifteen in each: in calm weather, they fly high; in storms, they fly low, and near the shore; but never cross over the land, even when a bay with promontories intervenes, but follow at an equal distance the course of the bay, and regularly double every cape. I have seen many of the parties make a sort of halt for the sake of fishing: they soared to a vast height; then darting headlong into the sea, made the water foam and spring up with the violence of their descent; after which they pursued their route. I enquired,' continues he, 'whether they were ever observed to return southward in the spring, but was answered in the negative; so it appears that they annually encircle the whole island.'

These birds are well known on most parts of our coasts. In Cornwall and Ireland, they are called Gannets; and, by the Welsh, Gan. Ray supposed the Cornish Gannet to be a species of large gull; being led into that mistake by constantly seeing the bird on the wing, when in reality it has the appearance of the gull.

Whether the Gannet breeds in any other parts of Europe except our own islands, is a question as yet undetermined. In America there are two species of birds belonging to this genus, which greatly resemble the common Gannet in their general conformation and manner of catching their prey.

The Gannet, with respect to quickness of sight, seems to exceed even the cormorant. It is possessed of a transparent membrane under the eyelid, with which it covers the whole eye at pleasure, without obscuring the sight in the smallest degree; and this seems a necessary provision for the security of the eyes of so weighty a creature, whose method of preying, like that of the cormorant, is by darting headlong into the water, from a height of one hundred feet or more, in order to seize its prey.

This bird is sometimes taken at sea by fastening a pilchard to a board, which is left floating. The Gannet instantly descends on the wood, and is either killed or maimed by the shock of a body from which it expected no resistance. A bird of this kind, we are informed, flying over Penzance, in Cornwall, a few years ago, and seeing some pilchards lying on a fir plank in a cellar used for curing

ing fish, darted itself down with such violence, that it struck it's bill through the board, about an inch and a quarter thick, and dislocated it's neck.

GAPERS. A name given by authors to such shells as are denominated bivalves and chamæ.

GARAGAY. A rapacious Mexican bird of the size of the kite, the head and tips of the wings of which are white. It makes but short flights; and being fond of the eggs of tortoises and crocodiles, it explores those places where they are buried in the sand.

GARDON. A fish of the roach kind, supposed by many authors to be but little different from the common roach of the English rivers. Some call it the Gardon fargus, and cephalus; and others, leuciscus.

GARDUS. An appellation given by some writers to that species of cyprinus called by Gesner and others the fargus.

GAR-FISH. See *Esox* and *Acus*.

GARGENY; the *Anas Querquedula* of Linnæus. A fresh-water fowl of the duck kind, somewhat larger than the teal, but strongly resembling it in shape; and hence, in many places, it is called the summer-teal. The beak, legs, and feet, are of a deep lead-colour; the upper part of the head is dusky, but on each side there is a white streak, drawn from the eyes to the back part; the throat and the lower part of the neck are variegated with white and reddish brown; the breast is beautifully variegated with transverse undulated lines of black and dusky brown; and the belly is white or yellowish. The female is smaller than the male, and the colours on the head are less bright and beautiful. It has an obscure white mark over each eye; and the rest of the plumage is of a brownish ash-colour.

GARHANA. A large Brazilian fish of the shape of the common carp; more usually known among authors by it's Brazilian name, *acaraaya*.

GARNET. See *LIMPET*.

GARRULUS ARGENTORATENSIS. An appellation sometimes given to that species of magpie commonly called the roller; a very beautifully variegated bird, found in Italy and some other places.

GARRULUS BOHEMICUS; the Bohemian Magpie. A name given by some naturalists to the bird more usually called *ampelis*, from it's fondness for grapes.

GARTER-FISH; the *Lipidopus*. The body of this fish is shaped like a sword; the head is elongated; the fins which cover the gills have seven rays; and there are only three scales on the whole body, two in the place of ventral fins, and the third proceeding from the anus.

GASTEROSTEUS. The name of a genus of acanthopterygious fishes; the characters of which, according to the Artedean system, are these: the branchiostegic membrane on each side contains three small and slender bones; the belly is almost entirely covered with bony scales; and the ventral fins have only two rays, one of which is prickly, and considerably larger than the other. There are three species of these fishes.

In the Linnæan system, this constitutes a genus of the thoracici, containing eleven species, which are distinguished by the number of their dorsal fins.

GASTEROSTEUS is a word of Greek origin, being derived from *Gaster*, the Belly; and *Osteon*,

a Bone; the greater part of the belly of this fish being fortified with bony plates.

GATTORUGIN. A fish of the genus of blenni, called by Linnæus *blennius gattorugine*. It measures about seven inches and a half in length; the body is smooth and compressed on the sides; the belly is somewhat prominent; the teeth are slender, almost setaceous, and very close set; between the eyes there is a small cavity; and above each eye, just on the summit, there is a narrow loose membrane, trifurcated at the top, which distinguishes this fish from every other species. The pectoral fins, consisting of fourteen rays, are broad and rounded; the dorsal fin contains fourteen strong spiny rays, and nineteen soft ones; the anal fin has twenty-one rays; the extremities in every fin extend beyond their webs; and the tail, which is rounded at the end, consists of twelve rays, divided towards their points. This fish is generally of a dusky hue, transversely marked with wavy lines; the belly is of a light ash-colour; and the lower part of the pectoral fins, as well as the ends of the ventral, are orange-coloured.

GATTORUGIN, INDIAN. The back of this species is arched, with a single fin running along it's middle from head to tail; and on the under-side it is hollowed or arched inwards. The teeth are extremely minute; the under-side of the head and the gills are marked with dusky roundish spots; the gills are pectinated on their edges; and behind them, on the under-side, are a pair of appendant fringes, each of which parts into two, and terminates in points. A single fin rises about the middle of the belly, and extends to the tail; the tail-fin is rounded; and from each side, exactly behind the gills, proceeds an oblong fin; the lateral lines are broken into angles; the scales are so minute as not to be perceptible by the naked eye, but on the sides appear some indentions with waved lines.

This fish is much compressed sideways, except about the head, where it is broader; and it's colour is a dull ferruginous.

GATVISCH. An American fish, a species of the *turdus* or wrasse, of a yellow colour, and beautifully variegated with red. It is generally known among authors by it's Brazilian name, *pira pixanga*.

GAVIAON. A Portuguese appellation for the *caracara*, a species of Brazilian hawk about the size of the common kite.

GAVILAN. The Spanish name of a species of hawk common in the Philippine Islands. It is somewhat larger than the sparrow-hawk; the back and wings are of a yellowish colour; and the belly is whitish. It is the most common of all predaceous birds in that part of the world, and is extremely voracious and mischievous.

GAVIOTA. The Portuguese name for an aquatic fowl of the gull kind found in Brazil, and called by the natives *guacu guacu*. It is about the size of the common hen: the beak is long, straight, and yellow; the head, tail, and part of the wings, are black; and the throat, breast, and belly, are white. The *Gaviota* deposits it's eggs in the sand, which are large, and esteemed wholesome food; but it's flesh is little valued.

GAYTICPUA. An American serpent, said to be found only in the kingdom of Razim. It grows to a vast size; and it's stink is so offensive, that no creature is able to approach it.

GAZA GIOVANE. A small species of heron,

ron, of a fine white colour, called by some authors *ardea alba minor*, or the small white heron. It's weight is about a pound; the whole body is of a pure snow-white colour; the hind-part of the head is adorned with a short crest; round the eyes there is a naked space of a greenish hue; and the feet are green, but sometimes covered with blackish scales. It's flesh is commonly eaten in Italy; but the feathers which compose the crest of this beautiful bird are reckoned it's most valuable part.

GAZE-HOUND. See **HOUND**.

GAZELLA, GAZELLE, OR ANTELOPE.

In the Linnæan system, this constitutes a species of the capra, or goat; but other naturalists make it a distinct genus, the characters of which are these: the horns are annulated, or twisted; there are eight broad cutting-teeth in the lower jaw; and the body and limbs are of a light and elegant conformation. Thus the Gazelle is made an intermediate genus between the goat and the deer, agreeing with the former in the texture of it's horns, which contain a core, and are never shed; and with the latter, in the elegance of it's form and swiftness of it's motion. The Gazelle being one of the fleetest animals in nature, it's chase is esteemed a favourite diversion in all those parts of the world where it is found. Some species form herds of two or three thousand; while others keep in small troops of five or six. The varieties of this animal are numerous; but, excepting two or three, they all inhabit the warmest parts of the globe; their proper climates seem to be those within the torrid zone; nor can they exist in the colder regions. See **ANTELOPE**.

GAZZA. The Italian appellation for a species of heron common in several parts of Europe; and called by many authors *ardea alba major*, the greater white heron. The whole body is of a snowy white colour; the beak is yellow; the membranes about the eyes are green; the tail is long; and the head is destitute of a crest; which last circumstance, added to the disparity of size, sufficiently distinguishes it from the *ardea alba minor*. This bird, which is sometimes seen in England, has been mistaken for the common heron become accidentally white; a phenomenon frequently observed in sparrows, and some other birds.

GAZZETTA. A name given by Gesner to the *ardea alba minor* of naturalists, the *gaza giovane* of the Italians.

GAZZETTO. A fish of the *turdus* or wrasse kind, caught in the Mediterranean, and sold in the markets of Italy. It is thick, and pretty broad; the colour is a fine green; the fins are spotted; and near the anus there is a large purple tubercle. The dorsal fin of this fish consists of twenty-four ribs or nerves; the first fifteen of which are rigid and prickly, the rest being smooth and flexile.

GED. The English name for a small species of snipe, usually called the juddock; and, by authors, *gallinago minima*.

GELLY, SEA. A term by which naturalists express the asterias, or sea-star.

GENET. An animal of the weasel kind, rather smaller than the martin, though some are larger. It resembles the weasel kind in it's great length compared to it's height, in having a soft beautiful fur, in it's feet being armed with untractile claws, and in it's appetite for petty carnage; but it differs from them in having the nose much smaller and longer, the tail tapering to a point, larger ears, and smaller paws.

The Genet is spotted with black, on a ground mixed with red and grey: it has two sorts of hair, the one shorter and softer, the other longer and stronger, but not more than half an inch long on any part of the body except the tail; it's spots are distinct and separate on the sides, but, uniting towards the back, there form black stripes which run longitudinally. There is also along the back a kind of longish hair, resembling a mane; and the tail is marked with rings, alternately black and white, from the insertion to the end. Like all the rest of the weasel kind, it is furnished with glands, which separate a kind of perfume resembling civet, but which soon evaporates: these glands open differently from those of other animals of this kind; for, as the latter have their apertures just at the beginning of the anus, the aperture of this creature is situated immediately under it.

Genets are easily domesticated. Belonius assures us, that he has seen some at Constantinople as tame as cats; and that they are permitted to run where they please, without doing any injury: hence they have been called the cats of Constantinople, though they have little else in common with these animals except their address in discovering and destroying vermin. Some naturalists pretend that they inhabit only moist grounds; and that they chiefly reside on the banks of rivers, avoiding mountainous and dry places; but, with respect to these local predilections, we are not competent to speak with certainty. Certain, however, it is, that the species is not much diffused: it is not to be found in any part of Europe, except Spain and Turkey; and though it requires a warm climate for it's subsistence and propagation, it has not been discovered in any of the warmer regions of India or Africa. It is a mild and tractable animal; beautiful in it's colours, and valuable for it's fur; and seems to be one of those creatures which, with proper care, might be propagated in any temperate climate.

GERBUA. An appellation sometimes given to the jerboa, an animal which inhabits Egypt, and some other countries. See **JERBOA**.

GERENDA. An East Indian serpent, finely spotted with various colours, to which the natives of Calicut pay divine honours; and, while their deity lies coiled up, (it's usual posture) they prostrate themselves before it with stupid adoration. The Gerenda is likewise worshipped in the same manner by the inhabitants of the coast of Mozambique in Africa.

The brilliancy of colouring in these reptiles, which probably procure them so much veneration among uncultivated nations; in countries where the principles of a just taste are established, would only excite disgust and aversion.

GER-FALCON, OR GYR-FALCON. This species of Falcon is naturally a very bold, wild, and untractable bird; but, when once reclaimed, it proves one of the most serviceable of the kind. See **FALCON**.

GHALGHULUNA. The Ceylones name for a species of serpent of a pale brown colour variegated with transverse streaks of white, and found among rocks and stones.

GIAROLA. A bird of the lark kind, remarkable for it's very long heel. It is about the size of the common lark; the head, neck, back, and wings, are of a mottled colour, resembling that of the quail; the general appearance of the feathers is a chestnut brown, and their edges are variegated

with white, yellow, and red; the back-part of the head has a crown or ring of white feathers; the belly is also white; and the tail is short, bifid, and variegated with chefnut and white.

GIAROLO. The Italian name for a small bird of the snipe kind, remarkable for its white tail. It bears a strong resemblance to the bird called in England the stint; but its beak is broader at the base, and its legs are thicker and shorter. Aldrovandus gives it the appellation of the *Cinclus tertius*; a very indeterminate name, *Cinclus* being applied by different authors to several different birds.

GIBBON. An appellation given by Buffon to the long-armed ape, a very extraordinary creature, of different sizes, being frequently four feet high. It walks erect; it is destitute of a tail; its face resembles that of a man; its eyes are large, and sunk in its head; and its ears are exactly proportioned. But it differs from all others of the monkey kind in the remarkable length of its arms, which, when the animal stands erect, are long enough to reach the ground; so that it can walk on all-fours, and yet retain its erect posture.

Next to the ourang outang, this animal most nearly resembles mankind, not only in its figure, but also in the gentleness of its manners and the docility of its disposition. It is a native of the East Indies, and particularly of the coasts of Coromandel.

GIBBOUS FISH. A name given by Ray to the fish called kromrugh by the Dutch. It is smooth, and without scales; the belly is white; the fins and tail are black; and it grows to a considerable size, sometimes to four feet. This fish, which is caught in the Oriental Seas, near the shores, is esteemed very delicious food. It receives its name from a remarkable prominence on its back, like that of the perch, but considerably higher.

GID, or GED. A small bird of the snipe kind, called also the judcock. See **SNIFE**.

GILT-HEAD. In the Linnæan system, this fish is a species of the sparus, called by that great naturalist sparus lunulâ aurea inter oculos. It is of a broad figure, compressed on the sides, and somewhat resembles the bream. It grows to the weight of ten pounds; and is caught in great plenty, during the summer months, in different parts of the Mediterranean. The back is sharp, and of a dusky green colour; between the eyes there is an arched stripe, resembling a crescent of a gold colour, the horns of which point towards the head, and from this semilunar gold-coloured spot the Gilt-Head receives its name. It has usually a black spot at the upper angle of the cover of the gills, and another of a purple colour below them; the teeth in each jaw are oblong and roundish; the tail is extremely forked; the dorsal fin, which extends almost the whole length of the back, consists of twenty-four rays; the pectoral fins consist of seventeen rays, the ventral of six, and the anal of fourteen.

The Gilt-Head is one of the pisces sexatiles, or fishes which haunt deep waters, or bold rocky shores. It feeds principally on shell-fish, which it comminutes with its teeth before it swallows them. Its flesh is reckoned extremely coarse; and was little esteemed by the ancient Romans, except when the creature had fed on the Lucrine oyster.

GILT-HEAD; RED. This species is about the same size as the former; its shape is not very different; but its whole body is of a red colour. At

the base of the pectoral fins there is a ferruginous spot; the scales are large; and the tail is forked.

GILT-HEAD, TOOTHED. This species grows to the length of twenty-six inches, and ten in breadth; its general conformation resembles that of the roach; and its eyes are large like those of quadrupeds. In the lower jaw there are two rows of slender, sharp teeth, and on each side a slender canine tooth; the upper jaw is furnished with only one row of teeth; the apertures of the gills are very large; and the body is scaly. A single fin extends down the centre of the back almost to the tail; the first seven rays are high, and the rest low; behind the vent there is another corresponding fin; and both are entirely covered with scales, laid over each other. The back is black; the sides are somewhat brighter; and the belly exhibits a silvery brightness.

GIMMERO. An animal said to be bred between the ass and the bull. The generality of naturalists deny the possibility of this mixture; while the natives of the Alpine countries, where this creature is found, as strongly insist on its reality.

GINETTA, or GENETTA; the Viverra Genetta of Linnæus. A small animal of the weasel kind, of a tawny red colour, ornamented with several black spots in different parts of its body, and having the ridge of its back marked with a black line. See **GENET**.

GIRAFFE. An appellation sometimes given to that very singular animal more commonly known by the name of the camelopard. See **CAMELOPARD**.

GIRROCK. The common English name of the fish called the lacertus; a large species of garfish, caught in the Mediterranean, the British, and other seas.

GLADIUS PISCIS. An appellation given by many authors to the sword-fish; called also *xiphias*.

GLAMA. A name sometimes given to the llama, an animal of the camel kind; called also *elapho camelus*. See **LLAMA**.

GLANIS. An appellation given by some naturalists to the fish called in Latin *silurus*; and, in English, the sheat-fish.

GLANS MARINUS. A genus of shell-fish, more commonly called *balanus*; and, in English, the centre-shell.

GLANUS, or GLANIS. An appellation given by Pliny, and other ancient writers, to that species of the *silurus* called in English the sheat-fish; and distinguished in the Artedean system by the name of the *silurus* with four beards on the chin.

GLAREANA. A bird described by Gesner, and generally supposed to be the *spipoletta*, a species of lark; called also *tordino* by the Venetians.

GLAUCUS. The name of a genus of fishes which, according to Rondoletius, comprehends three species. The first, or more common kind, is a broad fish approaching to the figure of the turbot, but very thin: the colour on the back and sides is a dusky olive; on the belly, white; and on each side appear a few black spots. The scales are small and rounded; the mouth is large, and internally tinged with blue, the teeth being small; and the tail is extremely large, and forked, the tips of the forks being varied with black. This species is commonly caught in the Mediterranean.

The second species is nearly of the same figure

as the former, but of a smaller size, and therefore called by some naturalists *glaucidium*. This fish has an undulated line running on each side from the membrane of the gills to the middle of the body, from whence it is continued straight to the tail; whereas, in the common *Glaucus*, this line preserves one unvarying direction.

The third species differs from the other two in having very strong and sharp teeth, and in the lateral line being much more waved: above this line the fish is of a deep blueish black colour; and, below it, perfectly white.

GLEAD. A provincial appellation for the *milvus*, or kite.

GLINUS. A name by which Belonius, and some other writers, have called the small sea-fish more generally known by that of *dracunculus*.

GLIS. In a limited sense, this word only signifies the dormouse; but, according to the acceptance of Linnæus, the *Glires* constitute the fourth order of the mammalia class of animals. The characters of the creatures belonging to this class are the following: they have only two fore-teeth in each jaw; they are destitute of the *dentes canini*, or dog-teeth; and the feet have toes, and are formed for leaping. Animals of this class comprehend the several species of the porcupine, the hare, the squirrel, the beaver, the mouse, and the bat.

GLIS VOLANS, the Flying Dormouse. The name of an animal properly of the *vespertilio* or bat kind; distinguished by Linnæus under the appellation of the *spasma*, or *vespertilio ecaudatus*, *naso foliato obcordato*.

GLISSA. A sea-fish of the tunny kind; but it's skin is perfectly smooth, and free from scales: it usually grows to the length of two cubits, and the thickness of a man's body; it is of a roundish figure; the jaws are very rough, but destitute of teeth; and the tail is forked, but less arched or lunated than that of the tunny. This fish is found in deep water, at a considerable distance from shore; and it's flesh is esteemed very delicate food.

GLOBE ANIMALCULE. This very singular, minute, aquatic animal, whose shape seems to be exactly globular, without either head, tail, or fins, was first discovered by the ingenious Baker, in his microscopical experiments. It moves in all directions, either rolling like a bowl, or gliding along smoothly without any convolutions. It's whole body is transparent, except where it is covered with circular black spots, which in different animalcules are found differing in their numbers; and these spots are probably either the eggs or the young. The general appearance of the body of this insect exhibits a kind of short moveable hairs or bristles, by means of which it is extremely probable that it's motions are performed.

GLOBE-FISH. The name by which some species of the *ostracion* are distinguished. See **OSTRACION**.

GLOBOSÆ CONCHÆ. A family of shells, more generally called tuns: the characters of which are; that their bodies are greatly swelled or rounded, from which circumstance they acquire the name of *Globosæ*, or tuns; that they have short turbans; that their mouths are extremely patulous; and that they are destitute of pillar or columella lips. The shells which belong to this family are the tuns, partridges, figs, harps, Persian crowns, and melons.

GLOTTIS. A name given by many naturalists to a bird of the long-legged kind approach-

ing to the figure of the red-shank, but larger and longer legged, and generally known by the appellation of *limosa*.

GLOW-WORM. A genus of insects of the order of *coleoptera*; the antennæ of which are setaceous; the jaws are prominent, and dentated; the eyes are slightly prominent; and the thorax is of a roundish, marginated figure.

The terms *Cantharis* and *Cicindela* have been indiscriminately applied to the Glow-Worm; but, in fact, they form two distinct genera of the same order, comprehending several species in the Linnæan system. The *cantharis* has setaceous antennæ; the thorax is marginated, and shorter than the head; the exterior wings are flexible; and the sides of the abdomen are plicated and papillose. In most species, the thorax is depressed; but, in some, it is roundish. Linnæus enumerates twenty-six species of this genus.

The same author reckons fourteen species of the *cicindela*, distinguished by their colours and the spots on their exterior wings: thus, the field, or green Glow-Worm, has five white spots on it's exterior wings; the black Glow-Worm, which frequents woody places, has two; the brassy Glow-Worm, commonly found in moist places, has broad excavated spots on the wings; and the black Glow-Worm, with a round thorax, common in rocky places, has two ferruginous spots on these wings.

No two insects differ more from each other than the male and female Glow-Worms. The male is furnished with wings, and is a small fly; whereas the female is destitute of wings, and continues a large crawling Worm. The body of the male is oblong, and somewhat depressed; the wings are shorter than the body; the head is broad, dun, and flat; and the eyes are large and black: this insect is by no means luminous, and therefore is not generally supposed to have any affinity to the Glow-Worm. The female is what is expressly called by this name: this is a very slow-paced animal, without wings, and in it's general conformation somewhat resembling a caterpillar; the head is small, flat, hard, black, and acuminate towards the mouth; the antennæ are short; the legs, which are six in number, are moderately long; the body is flat, and composed of twelve rings, whereas that of the male consists only of five; and the colour is dusky, with a streak of white running down the back. In the day-time it exhibits none of it's distinguishing qualities; but, in the night, it becomes perfectly conspicuous by the glowing light, or lambent flame, that is seen near it's tail, issuing from the under-part of it's body.

The common Glow-Worm, which so often presents itself to our curiosity during the summer months, if carefully taken up, may be kept alive many days on fresh turfs; and will constantly exhibit it's luminous appearance in the dark.

The Glow-Worm is a sluggish, inactive insect, having, to appearance, no signs of life in the day-time, when it's light is not perceptible, though carried into a darkened room, unless the creature is turned on it's back, and put into motion; and, even then, it is but very faint: but, after sun-set, the light begins to return, and with it the life and motion of the animal. Indeed, the motion and light of the Glow-Worm seem mutually dependent on each other: it never shines but when it's body is in some degree of motion; and, when it is most strongly luminous, it's body is elongated a third more

more than in the day-time. During it's most lucid periods, it will sometimes suddenly turn it's body round, and then the light will appear confined to a space not larger than the head of a pin; but, on being touched, it will immediately extend itself, and the light will become as large and bright as before.

This insect, taken in gross, is used in medicine, and thought to be serviceable in the stone: and Cardan ascribes to it an anodyne virtue.

GLOW-WORM, WINGED. This insect has been well described by Aldrovandus, who asserts that it lays eggs which are hatched into small Worms; and that these in time become flies, after undergoing the usual transformations. Mouffett and Bartholine describe this animal nearly in the same manner; but they allow only the male to have wings; while Scaliger, who contradicts this opinion, tells us that he has caught both males and females winged in the act of generation. This seems to be an evident proof that both sexes are winged: nevertheless, those who have quoted this passage, seem unconvinced of the truth of the assertion. Waller, however, who gives an account of these flies in the Philosophical Transactions, observed them in the same manner, in the act of copulation, both winged, and with no other difference between them except that the female was the largest of the two; a common case with respect to many other insects.

During the warmer months, this creature is sometimes caught in houses, flying towards the flame of a candle; and, when examined in the dark, it appears to be partially luminous. Before it is furnished with wings, it is frequently found in the shape of the common Glow-Worm; and then it always emits a kind of lambent flame. Both the male and the female, in their winged state, shine during the summer months; and their light is sometimes so vivid, that it is perceptible even when there is a candle in the room. It's vibrations are irregular, and it's colour is greenish. The luminous parts consist of two small specks under the tail, in which the light continues for some time after the tail is cut off, but gradually expires. The use of this light seems to be that of directing the animal in it's course, and assisting it in catching it's prey; to which purposes it appears admirably placed, the tail being easily bent under the belly, and then the light is thrown full on any surrounding object: this light the creature can conceal at pleasure, and by that means frequently escapes when pursued by it's enemies.

The Winged Glow-Worm, which is of the beetle kind, is of a brown and dusky colour: it is furnished with hard or shelly wings, like other beetles; and, when these are expanded, a pair of very large membranaceous ones is disclosed to view. The head is covered with a sort of shield; and under it the eyes are placed, which are black, large, and moveable; so that the creature can occasionally thrust them forwards: there are two hairy antennæ; and the legs are, like those of the common fly, hard, shelly, and hairy.

GLUTTON; the *Mustela Gulo* of Linnæus. No precise description of this quadruped has hitherto come under our observation; some authors comparing it to the badger, others to the fox, some to the bear, and others to the hyæna. Linnæus ranks it among weasels, from the similitude of their teeth; though the length of it's body, the shortness of it's legs, the softness of it's fur, it's

disagreeable scent, and it's insatiable appetite, seem to form stronger lines of affinity between these animals. Klein, who described a creature of this kind brought alive from Siberia, assures us, that it was about three feet long, and one foot and a half high. On comparing these dimensions with those of the weasel tribe, we shall find that they approach more nearly to the class just mentioned than any other. In the conformation of it's nose, ears, teeth, and long bushy tail, the Glutton entirely resembles the weasel; and, as to it's superior thickness and corpulence, they very naturally arise from it's insatiable voracity, which is so remarkable, that from that circumstance the animal receives it's name.

The Glutton is found in the northern parts of Europe and Siberia, as well as in those of America, where it is called the carcajou. It's body is long and thick; it's legs are short; along the back it is of a black colour, but it's sides are a reddish brown. It's fur is held in the highest estimation on account of it's softness and beautiful gloss; it's tail is pretty long and bushy; it's legs and claws are better adapted for climbing trees than running along the ground; and, consequently, it catches it's prey rather by surprize than pursuit.

Indeed, scarcely any of the long-bodied animals trust to their speed: knowing their own incapacity to overtake their prey through celerity, they either creep upon it in it's retreats, or lie in ambush, and seize it with a bound. The Glutton, from the conformation of it's legs and the length of it's body, must necessarily be extremely slow; and, consequently, it's only resource consists in taking it's prey by surprize. All the rest of the weasel kind, from the smallness of their size, are better adapted for a life of insidious rapine than this; they are qualified to pursue their prey to it's retreats; they can lurk unseen among the branches of trees, and hide themselves with facility under the leaves. But the size of the Glutton prevents it from gaining admission where other animals can retire; and, for the same reason, it with more difficulty lurks unseen: hence, it's only resource is that of climbing a tree, which it effects with ease; and there it waits with patience till some large animal passes underneath, on which it suddenly darts with unerring aim, and seldom fails to conquer.

In North America, this voracious creature is frequently seen lurking among the thick branches of trees, purposely to surprize the deer, with which the extensive forests of that quarter of the globe abound. Endued with a degree of patience equal to it's rapacity, the Glutton singles out such trees as are marked by the teeth or antlers of the deer; and sometimes watches, in silent expectation, for several days together. If it finds that these animals either cautiously avoid the place, or have forsaken that part of the country, it then descends with reluctance, pursues the beaver to it's retreat, or even commits itself to the liquid element in quest of fishes. But should it happen that, by long attention, and keeping close, at last the elk or reindeer should fall into the ambushade, the famished Glutton darts down upon the hapless animal, and sticks it's claws between it's shoulders, where they remain unalterably fixed. In vain does the large, but timid victim, encrease it's speed, or threaten with it's branching horns; the Glutton remains obstinately in possession of it's prize, eats through the neck, and at last rends the large blood-vessels which are situated in that part.

Travellers,

Travellers, when crossing those deserted forests, frequently observe pieces of the skin of the Glutton sticking to such trees against which it has been rubbed by the deer in it's flight. But as this animal's voracity is greater than it's feelings, it never seizes without subduing it's prey. When, therefore, the deer, wounded, and faint with the loss of blood, submits to it's fate, the Glutton compensates for it's former abstinence by it's present voracity.

It is really astonishing to consider how much one of these animals is capable of eating at one time. That which Klein saw, though deprived of both air and exercise, taken from it's native climate, and labouring under ill health in consequence of these changes, nevertheless devoured thirteen pounds of flesh every day, and yet remained unsatisfied. It may thence be easily imagined how much more it would have devoured at once, after a long fast, of food congenial to it's appetites, and in that climate most natural to it's constitution: and we are accordingly informed, that, from being a lank, thin animal, it's natural figure, it then eats such immoderate quantities, that it's belly is distended, and it's whole shape in a great measure altered. Having enjoyed this voracious repast, it becomes incapable of any animal function, lying in a state of torpidity close to the animal it has killed; and in this situation it continues for two or three days. Being thus reduced to a state both loathsome and helpless, it derives it's chief protection from it's horrid stench, which few animals dare to approach; and for this reason it is enabled to continue eating and sleeping alternately till it's prey is wholly consumed; and then it ascends some tree in order to look out for fresh adventures.

Like many others of the weasel tribe, the Glutton seems to prefer the most putrid flesh to that newly killed; and, were it's swiftness and strength equal to it's rapacity, it would soon thin the forest of every other living creature. But, fortunately for it's fellow quadrupeds, this animal is so slow, that the beaver alone is inferior to it in speed: this creature, therefore, it frequently pursues on land; but the beaver generally makes good it's retreat, by taking to the water, in which element the Glutton can by no means exist.

A life of necessity is generally productive of fertile invention: and accordingly the Glutton, continually pressed by the calls of hunger, and possessing neither swiftness nor activity to gratify that appetite, is obliged by stratagem to make up for the defects of nature. It often examines the traps and snares laid for other animals, in order to anticipate the fowler. It is said to practise various arts, in order to procure it's prey; to steal on the rein-deer in their retreats; to lie in wait for such animals as have been maimed by the hunters; to pursue the isatis while providing for it's own wants; and, when that animal has run down it's prey, to seize on it, and even sometimes to devour the original provider. When every other expedient fails, the Glutton condescends to search out graves; and, after digging up and feeding on the inhumed bodies, devours the very bones. For these reasons this carnivorous animal is held in utter detestation by the natives of those countries it inhabits, who usually term it the vulture of quadrupeds. But, though thus obnoxious and disgusting to man, these creatures do not seem at all to dread him; for, according to Gamelin, one of

them advanced boldly and calmly to a situation where several persons were at work, without betraying the smallest apprehension, or attempting to run away, till it had received several blows, which at last totally disabled it.

The Glutton, like all the rest of it's kind, is a solitary animal; and is never seen in company, except with the female, with which it couples in the middle of winter. The latter goes with young about four months, and brings forth two or three at a time.

Gluttons burrow in holes like weasels: the male and female are generally seen together; and both are equally resolute in defence of their young. On such occasions the boldest dogs are afraid to approach them, as they fight with the greatest obstinacy, and bite with the utmost severity: however, as they are unable to escape by flight, the hunters generally come up to the assistance of the dogs, and easily overpower them. Their flesh, as may easily be supposed, is not very delicate, but their skins amply recompense the hunters for their toil and danger. Their furs possess the most beautiful lustre imaginable; and are preferred before all others, except those of the Siberian fox and the sable.

GNAPHEUS. An appellation given by Athenæus, and other Greek writers, to the tench.

GNAT. A genus of the order of diptera, or two-winged insects, whose mouths are furnished with bristly stings, included in flexile sheaths.

Gnats proceed from little worms usually found at the bottoms of stagnant waters. The manner in which these insects lay their eggs is peculiarly curious and interesting: after having deposited a proper number on the surface of the water, they surround them with a kind of unctuous matter, which prevents their sinking; but, at the same time, connects them to the bottom by threads, to prevent their floating away at the mercy of every breeze. Thus these insects, in their egg state, resemble buoys fixed by anchors. As they approach towards maturity, they sink deeper; and at last, when they leave the eggs, and become worms, they creep at the bottom. After this, they form lodgings of cement, which they affix to some solid bodies at the very bottom of the water, unless they accidentally meet with pieces of chalk, which, being of a soft and pliant nature, give them an opportunity of sinking retreats for themselves, where the claws of cray-fish only can molest them. The worm afterwards changes it's form: it appears with a large head; and a tail invested with hair, and moistened with an oleaginous fluid, which serves to sustain it's body, and to transport it from one place to another. When the oil with which the tail is moistened begins to grow dry, the insect discharges an unctuous humour from it's mouth, which it sheds over it's tail; and, by virtue of this, it is enabled to transport itself from place to place without being incommoded by the water. The Gnat, in it's second state, is, properly speaking, a kind of nymph, which is it's introduction into a new state of being. In the first place, it divests itself of it's second skin; in the next, it resigns it's eyes, it's antennæ, and it's tail; and, in short, it seems actually to expire. However, from the remains of the amphibious animal a little winged insect arises, active in a high degree, and whose whole structure is a just object of our admiration: it's little head is adorned with a plume of feathers; and it's whole body is invested with

scales and hair, in order to secure it from the inclemency of the weather; and it makes trial of the activity of it's wings, by rubbing them either against it's body, or it's broad side-bags, which keep it in equilibrium.

But no part of this insect is more remarkable, or of more importance, than it's trunk, which may justly be deemed one of nature's master-pieces; and is so very small, that it's extremity can scarcely be discerned by the assistance of the best microscope that can be procured. That part which is at first obvious to the eye, is only a long scaly sheath under the throat: at the distance of near two-thirds of it's length, there is an aperture through which the animal darts out four stings, and afterwards retracts them; one of which, however sharp and active it may be, is no other than the case that contains the other three, for whose reception it is furnished with a long groove. These stings are sharpened on both sides; they are likewise barbed; and have a vast number of cutting-teeth towards their points, which are reverted, and fine beyond expression. When all these darts are thrust into the flesh of animals, sometimes one after another, and at others all at once, the blood and humours of the adjacent parts are unavoidably extravasated; on which tumours ensue, whose little orifices are soon closed up by the compression of the external air.

When the Gnat, by means of the extremity of it's case, which it uses instead of a tongue, has tasted any fruit, flesh, or juice, that it has discovered; if it be a fluid, it is sucked up without the protrusion of the darts; but, in case the least resistance is made by the obstruction of flesh, or other hard substances, the insect exerts it's strength, and penetrates it if possible with it's weapons. This being achieved, it draws it's stings into their sheath, which is applied to the wound, in order to extract, as through a reed, the juices which are therein inclosed.

But though the Gnat is very active and troublesome in the summer months, during winter it ceases to receive any food; and spends all that tedious season either in quarries or caverns, which, at the return of summer, are abandoned for some commodious ford, or stagnant water, where it may produce it's kind. Indeed, the young brood is sometimes so numerous, that the very water is tinged, according to the colour of the species, which is very various, and in general very beautiful.

Nothing, however, is more curious in the history of this animalcule, than it's method of propagation. Though all insects of the Gnat kind are pretty similar in their conformation and general appearance, they differ widely from each other in the manner in which they are produced: for some are viviparous, others oviparous; some are males, and unite with the females; others are females, requiring the impregnation of the males; and some, though of neither sex, produce young without any copulation or contact whatever. This is indeed one of the greatest irregularities in the history of nature; but it is nevertheless true. A Gnat, separated from the rest of it's kind, and inclosed in a glass vessel, with air sufficient to keep it alive, will produce young; which also, when separated from each other, will be the parents of a numerous progeny. Thus, through five or six generations, will these extraordinary animals propagate without the aid of copulation, and without any congress between the males and females; but,

after the manner of vegetables, the young bursting from the bodies of their parents without any previous impregnation. At the sixth generation, however, the propagation is suspended; the Gnat no longer produces it's like from itself alone, but requires the access of the male to give it another succession of fecundity.

The European Gnats give the human species but little molestation; they are sometimes, indeed, heard humming about our beds in the night-time, and retard the approaches of sleep by the apprehensions which they naturally excite: but the case is very different in the less populous and cultivated regions of America, where the waters stagnate, the climate is warm, and where they are produced in inconceivable multitudes. There the whole atmosphere is frequently filled with clouds of those famished insects, of different sizes, from the length of six inches, to a minuteness only discernible by the assistance of the microscope. The ardour of the meridian sun is too potent for their constitutions, and they therefore shun his influence: but when the evening shades prevail, neither artifice nor flight can possibly shield the wretched inhabitants from their attacks; for, though myriads are destroyed, myriads more constantly succeed them, and produce unceasing annoyance. The native Indians, who anoint their bodies with oil, and are from their infancy habituated to the depredations of these creatures, find them far less troublesome than those persons who are but newly arrived from Europe: the former sleep in their cottages having their bodies almost entirely covered with these insects, and enjoy, notwithstanding, uninterrupted repose; while the latter are almost driven to distraction, neither remaining quiet by day, nor sleeping by night.

The numbers of species of the Gnat kind, including the larger and smaller ones, are beyond the art of the most skilful naturalist to enumerate. Derham observed near forty different species in the vicinity of Upminster in Essex; but those which arrive at a size capable of being remarked with the naked eye are by no means innumerable. All the Gnat tribe have a long cylindric body, composed of eight wings; the corselet is short, but large, in proportion to the size of the fly; and to this member are affixed six legs, the wings, and the balancers: four stigmata are also found in this part, as is the case in other flies; the two first of which are placed near the head, and have sometimes been mistaken for ears.

Linnæus describes the six subsequent species.

GNAT, DUSKY, with a forked snout. This species is ash-coloured, and moderately large: it has no points on the wings; and from between the jaws, or more properly from the trunk, proceeds a forked dart. Ray supposes this to be the female of the domestic tipula, because it neither bites nor stings.

GNAT, ASH-COLOURED, with eight rings on the body. This is the common Gnat, which is seen in almost every country; and is too well known to require any farther description.

GNAT, with water-coloured wings, marked with three black spots. This species is by some authors called the least Gnat with blackish spots; the body is of a brownish colour, and no bigger than a small flea; and the wings are white, narrow, and marked on their exterior edges with three dark specks.

GNAT, BLACK, with water-coloured wings, black feet, and a white ring. This species abounds

in

in Lapland, where they make a prodigious humming in the dusk of the evening. They bite with great severity, generally attacking the eyes, mouth, and face; and are not easily deterred, notwithstanding the minuteness of their size, which does not exceed that of a flea.

GNAT, DOWNY, with wings partly dusky. This variety is found in gardens, where they fly unceasingly, and seem to delight in the smell of flowers. Ray calls this the Gnat shaped like the silkworm moth, all over setaceous and black, with the hinder part of the body blunt, and red sides.

GNAT, BLACK, with a dusky body and a white forehead. In the Transactions of Upsal, this species is called the least blood-sucking fly with white wings. It is extremely troublesome to horses in the summer season, getting under their hair, and extracting their blood. The feelers resemble threads, though the insect is shaped like a fly; the head, feet, and breast, are black, except that the sides of the latter are ash-coloured, and that there is a white spot above and below the eyes.

GO. An appellation given by some authors to the common rock-fish, or sea-gudgeon.

GOAT. In the Linnæan system of zoology, the Goat makes a distinct genus of the order of pecora: the distinguishing characters of which are; that the horns are hollow, turned upwards, and annulated on their surfaces; that there are eight cutting-teeth in the lower jaw, and none in the upper; and that the male is generally bearded.

The Goat is one of those domestic animals whose value is overlooked, because the sheep so far exceeds it: thus the ass is of little consequence, because the horse supplies its place. Were the horse or the sheep removed from nature, the ass and the Goat would be invaluable; and the same arts would immediately be bestowed in cultivating and improving their kinds, that the higher orders of animals experience. But, in their present neglected state, they vary little from the wild animals of the same kind: man has left them their primitive habits and forms; and, the less they are indebted to his assiduity, the more they receive from nature.

The Goat, viewed in every possible light, seems better adapted for a life of savage liberty than the sheep. It is naturally more lively, and possessed of more animal instinct; it more readily attaches itself to man, and appears sensible of his caresses: it is also stronger, swifter, more courageous, more playful, and more capricious and vagrant, than the sheep; it is with difficulty confined to a flock; it chuses its own pastures; and loves to stray from its companions. It is fond of climbing precipices; it delights in approaching the very brink of danger; and it is often seen suspended on an eminence overhanging the sea, and even to sleep in that situation in perfect security. Nature, indeed, has in some measure fitted this animal for traversing these declivities with ease: its hoofs are hollow underneath, and their edges sharp; so that it can walk on the ridge of a house with as much facility as on level ground. When two Goats are yoked together, as is frequently practised, they will, as if by consent, take the most hazardous leaps, and yet so well time their mutual efforts, that they will rarely miscarry in the attempt.

As Goats are hardy creatures, and very easily sustained, they are for that reason chiefly the property of the poor, who have no pastures to supply more

delicate animals. They prefer the neglected wilds to the cultivated fields of art; they chuse the heathy mountains, or the shrubby rocks; the tops of the boughs, or the tender bark of young trees, are their favourite food; they bear immoderate heat much better than sheep; and are neither terrified at a storm, nor incommoded by rain; seeming only affected by immoderate cold, which produces the vertigo, a disease often fatal to these animals. The inconstancy of their nature is perceivable in the irregularity of their gait; they go forward, stop, turn, approach, and fly, merely from caprice and the extreme vivacity of their dispositions.

The Goat produces but two or three at a time; and though it degenerates in warm climates, and is much smaller, it nevertheless becomes more fruitful, and generally brings forth three, four, or even five, at a single delivery. The buck is capable of procreating its kind at the age of twelve months, and the female at that of seven: however, the fruits of this premature generation are weak and defective; and their best breeding time is generally delayed till the age of two years. One buck is sufficient for a hundred and fifty goats: his appetites are excessive; but this ardour brings on a speedy decay, so that he is enervated in four years at most, and even becomes old before he arrives at seven. The Goat, in some places, bears twice a year; and, like the sheep, continues five months with young.

The milk of the Goat is sweet, nutritive, and medicinal; less liable to coagulate on the stomach than that of the cow, and therefore preferable when the digestion is weak. The peculiarity of this animal's food communicates a flavour to its milk different from that of the sheep or the cow; for as it generally feeds on shrubby pastures and heathy mountains, there is a particular taste in its milk which is very grateful to such as are fond of that aliment.

In several parts of Ireland, and the Highlands of Scotland, Goats constitute the chief possessions of the natives. On those mountains where no other animals could subsist, these creatures glean a sufficient maintenance, and supply the hardy inhabitants with a varied luxury. Their beds are made of Goats skins, which are soft, clean, and wholesome; they feast on their milk, and convert one part of it into butter, and another into cheese: their flesh, however, is a delicacy they seldom taste, it being reckoned too expensive. The kid is considered, even by the epicure, as a dainty; and the flesh of the Goat, when properly prepared, is preferred by some to venison.

Thus, even in the wildest solitudes, the poor experience comforts of which the rich have not been cruel enough to dispossess them. In those mountainous retreats, where the landscape presents only a scene of rocks, heaths, and shrubs, that proclaim the wretchedness of the soil, these simple people have their feasts and their enjoyments: their trusty flocks of Goats attend them in those awful solitudes, and furnish them with all the necessities of life; while their remote situation happily keeps them ignorant of greater luxuries.

Goats are found in almost every part of the world, and seem suited to the necessities of mankind in both extremes: they are fattened in the same manner as sheep; but, notwithstanding every possible precaution, their flesh is neither so good nor so sweet, in our climates, as mutton. But, between the tropics, the case is very different; the
mutton

mutton there becomes flabby and lean; while the flesh of the Goat seems rather to improve; and, in some places, the latter is much preferred to the former.

Goats are so injurious to young plantations, that it would be imprudent to draw them from their beloved rocks, unless some method could be contrived of preventing them from cropping the tender boughs, or tearing the bark from young trees. Pennant informs us, that a gentleman of Merionethshire broke the teeth of his Goats short off with pincers, in order to preserve his trees: but this cruel policy ought not to be recommended; especially when those animals are preserved for the sake of their milk, the salubrity of which, it is supposed, arises principally from their promiscuous feeding.

The Goat, in various instances, contributes to the necessities of human life. From its hair, perukes, and even cloth, are made; its skin is useful for a variety of purposes; its horns are manufactured into handles for various instruments; and its suet is in great esteem for making candles, which are far superior in whiteness and durability to those made from that of the sheep, or the ox, and consequently bring a better price. The value of its flesh and milk is well known; the latter being esteemed an excellent succedaneum for asses milk. In many of the mountainous parts of Scotland and Ireland, this milk is turned into whey, and has been surprizingly efficacious in those complaints where coolers and restoratives are necessary. Patients resort to many of those places during the proper season; and, from the combined aids of this salutary and innocent medicine, pure air, and exercise, they frequently experience a return of health, and a renovation of constitution, when all other expedients prove abortive.

The rutting-season of Goats is from the beginning of September till November: their excessive venery is a bar to their longevity; and accordingly they seldom live beyond their twelfth year.

Goats were held in great veneration by the inhabitants of Mendes, in Egypt; and the natives of that country in general never offered them in sacrifice, because their god Pan was represented with the feet and legs of a Goat. Under the symbol of this animal, they imagined that they worshipped the principle of the fertility of all nature, expressed by that divinity. However, among the Greeks, Goats were sacrificed, on account of their destroying their vines. Venus used frequently to ride on a Goat. The popular Venus, says Pausanias, is represented as mounted on a Goat; and the marine Venus riding through the waves on a Sea-Goat.

GOAT, DOMESTIC. The horns of the tame Goat, which have a curvature outwards towards their extremities, have been found to measure three feet five inches in length, and three feet two inches between tip and tip. The colour varies extremely; and the hair, in some, is long and rough; but, in others, smooth and short.

The tame Goat inhabits most parts of the world, either natively, or naturalized. It endures all kinds of weather; and is found in Europe as high as Wardhus in Norway, where it feeds, during the winter season, on moss, the bark of fir-trees, and even of logs intended for fuel; and it thrives equally well in the hottest parts of Africa, in India, and the Oriental Islands. The Goat, however, is not a native of the New World, having been introduced there by the original discoverers of

that continent; for the Americans were unacquainted with all domestic animals, sheep, goats, hogs, cows, and horses. The increase of these creatures in all parts of that continent, especially its southern division, is really prodigious. But, in the rigorous climate of Canada, the Goat is too delicate to perpetuate its race; for which reason new supplies are annually imported, in order to prevent its extinction.

GOAT, IBEX; the *Capra Ibex* of Linnæus. This animal has large knotted horns reclining backwards, sometimes three feet in length. The eyes are large; the head is small; and the male has a dusky beard. The hair is rough, and of a deep brown colour mixed with some hoary; the legs are partly black, and partly white; the space under the tail, in some, is tawny, and in others white; the belly is a tawny white; the body is short, thick, and strong; the legs are thick; the tail is short; and the hoofs are very narrow. The female is less than the male; and her horns, which are smaller, have fewer knobs on the upper surface.

The Ibex inhabits the Carpathian and Pyrenean Mountains, the country of the Grisons, the Rætian Alps, and various countries of Asia. These creatures are excessively wild, and difficult to be shot; and, in very severe weather, they descend from the summits of those mountains where they usually reside, in quest of food. During the rutting-season, the males make a horrible noise; and the females separate, at the time of parturition, and retire to the side of some stream, in order to bring forth. Being very strong and intrepid, the chase of these animals is of course both difficult and dangerous: they sometimes precipitate the incautious hunters from the rocks; and, when pressed hard, they fling themselves down the highest precipices, and, pitching on their horns, frequently escape unhurt. Their flesh is esteemed wholesome; and their blood was once greatly reputed in pleuritic cases.

GOAT, CAUCASAN. This animal is only a variety of the ibex. It has smooth black horns, sharply ridged on their upper parts, and hollowed on their exterior sides; they bend backwards considerably, are much hooked at their extremities, and approach a little at their points. The chin is furnished with a great dusky beard, mixed with chestnut colour; the fore-part of the head is black; the sides are mixed with brown; and the rest of the animal is grey, or grey mixed with rust-colour. Along the ridge of the back runs a black list; and the tail is also black.

These animals are superior in size to the largest He-Goats; but, with respect to form and agility, they resemble stags. They inhabit the lower mountains of Caucasus and Taurus, Asia Minor, and, most probably, the mountains of India. They abound on the barren hills of Laar and Khorazan, in Persia; and, according to Monardus, are also found in Africa. They are creatures of surprizing agility. The above naturalist was witness to the manner in which one of them saved itself by falling on its horns: he saw it leap from a high tower, precipitate itself on its horns, then spring on its legs, and leap about, without sustaining the smallest seeming injury.

The Caucasian Goat is one of those animals which yields that once valued alexipharmic the bezoar-stone; a concretion formed of many coats, incrusting a nucleus of small pebble, stones of fruits, bits of straw, or buds of trees. The incrusting coats are created from the vegetable food
of

of the animal, especially the rich, dry, and hot herbs, of the Persian and Indian mountains. The virtues of this substance are now exploded; and it is reckoned only an absorbent, and that of the weakest kind.

Since the discovery of this species of Goat, for which we are indebted to Professor Guildenstaedt, it has generally been supposed to be the origin of the tame or domestic breed, as there is the greatest conformity between it's horns and those of the domestic kinds; unless it may be imagined that the latter have lost the knots, from their mode of life. The ibex was formerly regarded as the parent stock; and between it and the Caucasian a valuable breed may be produced.

GOAT OF ANGORA. The Natolian Goat, or, as Buffon calls it, the Goat of Angora, has longer ears than the domestic breed, and broader in proportion. The horns of the male are about the same length as those of the European Goat, but black, and very differently turned, proceeding horizontally on each side of the head, and being twisted round after the manner of a cork-screw: the horns of the female are shorter, and encircle the ears somewhat like those of the ram.

These animals are found only near Angora, Beibazar, and Cougaa, in Asiatic Turkey. Those of the last-mentioned place have brown or black hair; and those of the two first places have hair of a silky fineness and silvery whiteness, in curled locks about eight or nine inches long. Their hair forms the basis of our fine camblets, and is imported into this country in the shape of thread; for the Turks, from a commendable attention to the poor of their own country, will not suffer it to be exported raw, as the spinning affords employment to multitudes.

The Goat of Angora is confined to a district of two or three days journey in extent; and, if removed to another climate, it's hair becomes coarser, and consequently less valuable. The Goat-herds of Angora and Beibazar are extremely careful of their flocks, frequently combing and washing them; and this gives a beauty to their hair, which is unrivalled in any other part of the world.

GOAT, SYRIAN. This species is somewhat larger than the European. It's ears are pendulous like those of the hound, and from one to two feet in length; and so inconvenient are they sometimes to the animal, that it's owner cuts them off, to enable it to feed with more ease. It's horns are black, bending a little forwards; and are only about two inches and a half in length. The colour of it's hair is like that of the fox; and there are two excrescences under it's throat resembling the gills of a cock.

These animals are chiefly kept round Aleppo, in order to supply the natives with milk; which, as in other countries, is esteemed wholesome and pleasant. They are driven through the streets from April to September, after the manner of she-afes in London; and their milk is sold to the inhabitants as they pass along.

GOAT, AFRICAN. This variety is very small. The male is covered with rough hair; beneath the chin hang two rough hairy wattles; and the horns, which are short, very thick, and triangular, lie so close to the skull, that they almost penetrate the skin. The horns of the female are less than those of the male; she is destitute of wattles; and her hair is smooth.

GOAT, WHIDAW, OR JUDA. This species resembles the common Goat, except in size, being no larger than the hare. It is found in Guinea, Angola, and all along the coasts of Africa: in those countries it becomes very fat; and it's flesh is so much esteemed, that it is universally preferred to mutton. Linnæus says, that this animal was originally imported from America; but certainly this must be a mistake, as it has frequently been proved, that the Goat, as well as every other domestic creature, were entirely unknown on that continent before they were introduced by the Spaniards.

GOAT, BLUE. At the Cape of Good Hope, in Africa, there is found an animal called the Blue Goat, resembling the domestic Goat in shape; but considerably larger, being nearly of the size of the stag. It's hair is very short, and of a fine shining blue colour; but, when the animal is dead, it loses much of it's beauty. It's horns are shorter in proportion than those of other Goats, and spirally turned; it's beard is long and full; and it's legs are long, but well-proportioned. It's flesh, though lean, is well tasted; but, in that plentiful country, this creature is chiefly killed on account of it's skin.

This species is naturally shy and timid, seldom approaching the Dutch settlements; but is very numerous in the uncultivated and interior parts of the country. In those extensive regions which border on the Cape, there are also various other species of Goats, many of which are beautifully marked with brown, white, and red spots.

GOAT, CAPRICORN. The Capricorn is a variety having short horns, turning forwards at their extremities, their sides annulated, and the rings more prominent before than behind. These are the principal characters of this species; and such may be purely accidental, produced either by climate or food, which have a very considerable and sensible effect on animals unquestionably belonging to one and the same origin.

GOAT, SIBERIAN. This species varies both in size and colour. The skin of one of these animals, now in the British Museum, is covered with pale ferruginous hair, short on the sides, but longer on the top of the neck, and a little erect; on the shoulders, and along the lower sides of the neck, the hair is fourteen inches long, beneath which is a kind of short wool; and on the knees there is a bare spot, which seems to have been occasioned by kneeling in order to lie down. The tail of this animal is short; the horns are twenty-five inches long, eleven in girth in the thickest place, and nineteen distant from point to point; the mouth, the forehead, and the ears, resemble those of the ram; and the creature has no beard.

The island of Corfica furnishes a variety of this species, considerably smaller, and of a deepish brown mixed with a rust-colour; the belly, rump, and hind-legs, are white; and the horns of the female are much smaller than those of the male.

Belonius very injudiciously styles this animal the tragelaphus, or deer; though it's horns do not fall off annually like those of the stag. Buffon supposes it to be the sheep in a wild state; but Pennant, and some other writers, are of a contrary opinion.

These Goats are found in the north-east parts of Asia; and in Barbary, Sardinia, Corfica, and Greece: they live on the mountains, and run with great rapidity among the rocks. Those of Kamtschatka, which are amazingly strong, grow to the size of young stags; they propagate in autumn; and the

female brings forth one, and sometimes two, at a birth.

GOAT, SHAMMOY, OR CHAMOIS. This animal is about the size of the domestic Goat, which it resembles in many respects. It is naturally very wild, but easily tamed; and is found only in rocky and mountainous places. It is extremely lively and active; its hair is like that of the doe; its colour is cinereous in spring, dun inclining to black in autumn, and a blackish brown in winter; its eyes are beautiful, round, and sparkling; it has two small horns, about half a foot long, which jet out forwards, bending a little backwards at their extremities; its ears are elegantly placed near its horns; and on each side of its face there are two stripes of black, the rest being of a whitish yellow colour. The flesh of this Goat is esteemed tolerable food; and each animal yields about ten or twelve pounds of excellent suet, which is convertible to many useful purposes.

Shammoy Goats are very common in Dauphiny, Piedmont, Savoy, Switzerland, Germany, Greece, and Crete. They assemble in flocks, from four to one hundred, dispersed on the crags of the mountains. The full-grown males feed at some distance from the rest, except during the rutting-time, when they approach the females, and drive away their young. They couple from the beginning of October to the latter end of November, and bring forth in March and April. The young ones follow their dams about five months, if not separated before by the hunters or the wolves. They live between twenty and thirty years; and the females generally produce two, and seldom more than three, at a time.

Though most animals are known to have some cry peculiar to themselves, the Shammoy has scarcely any; only a kind of feeble bleat, by which the parent calls its young; but, when danger threatens, and it wishes to alarm the rest of the flock, it makes a hissing noise, which is heard at a considerable distance. It is extremely vigilant, and has a quick and piercing eye. Its smell is also very distinguishing; for by it, we are told, it can discover any person at the distance of half a league, and give the earliest notice to its companions. On the least apprehension of danger, it utters its hissing note; and having reposed a moment after this alarm, it again looks round, and perceiving its fears to be real, continues to hiss, at intervals, till it has spread the alarm to a vast distance. During this time, it seems violently agitated; it strikes the ground with one of its fore-feet, and sometimes with both; bounds from rock to rock; turns, and looks about; runs to the edge of the precipice; and, still perceiving the enemy, flies with the utmost speed. It is remarked by naturalists, that the hissing of the male is much sharper and louder than that of the female.

The Shammoy, like the common Goat, feeds on the tenderest herbage, and selects the most delicate parts of plants, flowers, and buds. While it feeds on succulent herbs it drinks but little, and chews the cud at intervals. This creature is so very impatient of heat, that, during the ardors of summer, it is found only in the caverns of rocks, amidst fragments of unmelted ice, and under the shades of high-spreading trees, or such hanging precipices as face the north, and keep off the rays of the sun. It goes to pasture in the mornings and evenings, but seldom quits its retreat during the heat of the day. During the rigours of winter, it

sleeps in the thickest forests, and subsists on the shrubs and buds of the pine-tree. It turns up the snow with its feet in quest of herbage; and, where it perceives any vegetables, exerts its utmost industry to uncover them. The more craggy and rugged the forest, the more the Shammoy seems to enjoy its situation. It always ascends or descends in an oblique direction; and will throw itself down a rock thirty feet high, and safely fix on some protuberance or fragment on the side of the precipice, though only large enough for its feet to rest on: in its descent, however, it strikes the rock three or four times with its feet, as well to stop the velocity of its motion, as to break the force of its fall.

The skin of this animal, when dressed, has been celebrated for its softness and warmth: at present, however, the leather called Shammoy is made from the skins of tame Goats, sheep, and deer.

The Shammoy is hunted, during the winter, partly for its skin, and partly for its flesh: and its chase is a very laborious employ; for it must be approached by surprize, and shot with a rifle-barrelled gun.

Altmann informs us, that there are two species of Shammoy Goats in Switzerland; one of which is redder and smaller than the other, and never descends into the vallies, but continues on the most inaccessible mountains during the whole winter. The other species, which is larger and browner, sometimes descends to the bottoms of the mountains; where it lives, during the winter, on the extremities of the branches of fir-trees.

Many medicinal qualities are ascribed to several parts of this animal. The fat, mixed with milk, is said to be beneficial for ulcerated lungs; and the gall is supposed to strengthen the sight, to cleanse ulcers of the cornea, and to remove spots. The stone sometimes found in the stomach of this creature, is called the German bezoar, and was formerly thought to possess the virtues of the Oriental bezoar; but even those qualities which the latter was once said to possess, are no longer attributed to it, being now considered only as a weak absorbent.

GOAT, SEA. This fish has a compressed head, in the upper part of which the eyes are placed; the mouth is small; and in each jaw there are eight teeth. Along the middle of the back are three very strong large prickles united by a membrane, the foremost being by far the largest: these appendages the creature can raise or depress in a bony sulcus formed by nature for that purpose; which peculiarity seems to belong to this fish only. It is covered with scales which bear some resemblance to those of a serpent; for, besides their being arranged in such a manner that the intermediate lines make a sort of chequer-work, they also stick so extremely close to the skin, that they cannot be separated without a laceration of the parts. The colour of the Sea-Goat is a dusky green, speckled with blue; the dorsal and ventral fins are blackish, marked with blue and red spots; the shape is broad, very flat, and almost roundish; and the weight is about two pounds.

This fish is sometimes caught in the Mediterranean; and its skin is preserved in the cabinets of the curious.

GOAT-SUCKER. This bird, called also the Churn-owl, weighs about two ounces and a half; its length is ten inches and a half, and its breadth twenty-two. The irides are hazel-coloured; the bill is about one-third of an inch long; the tongue is

is very small, and placed low in the mouth; the legs are small, scaly, and feathered below the knees; the middle toe is connected to those on each side by a small membrane reaching to the first joint; and the claw of the middle toe is broad and thin. The colours are plain; but they have a beautiful effect from the elegance of their disposition, consisting of black, brown, grey, white, and ferruginous, arranged in streaks, spots, and bars. The male is distinguished from the female by an oval spot near the end of each of the three first quill-feathers, and another on the two exterior feathers of the tail.

This bird is with great propriety placed among the swallow tribe by Klein, who calls it the swallow with an undivided tail. It possesses the principal characters of this genus; namely, a very large mouth, a very small bill, and small legs. It is also a bird of passage; and agrees with the swallow kind in its food and the manner of seizing it; but differs from it as to the times of preying, the Goat-Sucker flying chiefly by night. It continues but a short time in this island; appearing about the latter end of May, and disappearing in the northern parts of Britain about the end of August; but, in the southern, it stays above a month later. It visits all parts of this kingdom, from Cornwall as far as the county of Ross. Scopoli, among the moderns, seems to credit the report of its sucking the teats of goats; an error handed down from the days of Aristotle.

The notes of the Goat-Sucker are extremely singular; the loudest of which so much resembles the sound of a large spinning-wheel, that the Welsh call this bird *aderyn y droell*, or the wheel-bird. It begins its song about the close of day, sitting usually on a bare bough, with its head lower than its tail, its lower jaw quivering with the efforts; and the noise is so violent, as to give a sensible vibration to any little building on which it may happen to alight, and emit this species of note. The other, and indeed the common tone, is a sharp squeak, which it frequently repeats; and this seems to be the call of love, as the male is observed to reiterate it when in pursuit of the female among trees.

The Goat-Sucker deposits its eggs on the bare ground, usually two in number, of an oblong form, and a whitish hue beautifully marbled with reddish brown.

GOAT-SUCKER, LESSER. In its general shape and colour, this species exactly resembles the preceding; but it is one-third part less. In Virginia, it is called *Whip-Poor-Will*, from its cry, which seems to express those words very nearly. The bill is small and black; the mouth is wide, its angles extending beyond the eyes; the sides of the head round the eyes are a light brown inclining to ash-colour; and on the throat are semilunar white spots, the corners of which revert towards the ears. The top of the head, the upper-side of the neck, the back, the upper coverts of the wings, and the tail, are covered with dark brown feathers, transversely barred, and sprinkled with a lighter brown and some little mixture of ash-colour blended in an irregular manner: from the bill some bright spots of orange-colour pass over the eyes, down the sides of the neck; and on the upper coverts of the wings are some pretty distinct spots of light brown. The quill-feathers are dusky, or rather black; the five first having a white spot passing through them, which mark appears both internally and exter-

nally. The covert-feathers within-side the wings are white, with a cloud of orange transversely barred with dusky lines; the whole under-side, and covert-feathers under the tail, are white, with some mixture of faint orange regularly crossed with lines of dusky black; the legs and feet are very small, and feathered a little below the knees; the exterior and middle toes are joined part of the way by a membrane; and the two middle claws are ferrated within-side.

This bird, first described by Edwards, was brought from Virginia. To illustrate its history, we shall subjoin a quotation from a letter, which accompanied the bird first imported. 'These birds come to Virginia about the middle of April; from which time till the end of June they are heard every night, beginning about dusk, and continuing till day-break; but it is chiefly in the upper or western parts of the province that they are so frequent: I never heard more than one in the maritime parts; but near the mountains, in the month of May, within a few minutes after sun-set, they begin, and make a very loud and shrill noise all night, which the echoes from the hills increase to such a degree, that the first time I lodged there I could hardly sleep; however, they are seldom seen in the day-time. The Indians imagine these birds are the souls of their ancestors formerly slaughtered by the Europeans; and say that they never appeared in this country before that slaughter. Many people regard them as birds of ill omen. I have been informed, that they lay two eggs of a dark green colour, spotted and scrolled with black, in the plain beaten paths, without any signs of a nest; on which they sit very close, and suffer a near approach before they meditate a flight.'

GOBEMOUCH; the Fly-catcher Lizard. A species of American lizard which subsists on catching flies. It is one of the smallest of the lizard kind; and is very beautiful, its skin appearing as if covered with leaf-gold or silver; and, in some varieties, green, red, and gold, are elegantly intermixed.

These creatures enter the houses of the inhabitants of that country without any seeming apprehension, and only destroy the flies and other vermin they find there. Indeed, their whole attention is occupied in the pursuit of these insects; and it is really amusing to observe the various manœuvres they adopt in this favourite chace. The natives suffer these animals to run about unmolested; and if they perceive any flies, they will pursue them over the tables, cloaths, and even hands, of the inhabitants, without doing the least injury. Notwithstanding the beauty of these reptiles when alive, they are no sooner dead, than it totally vanishes, and they become only of a dusky grey hue.

GOBIO CAPITATUS. An appellation given by many writers to the cottus, or cottus levis, of Linnæus, with two spines on its head. This is a small fish; and, in England, it is called the bull-head, or miller's-thumb.

GOBIONARIA. A name given by Gaza, and some others, to the little fish called cobitis, and *aphua cobitis*, by the ancient Greeks.

GOBIUS. A genus of fishes of the acanthopterygious or prickly-finned kind; the characters of which are these: the branchiostege membrane contains on each side very distinct bones, extremely irregular in their size, the first and fourth being much broader than the others; the ventral fins unite,

unite, and form one single fin, shaped like a funnel; there are two dorsal fins, the anterior of which consists of somewhat rigid bones; the scales are rough; the body is oblong; the head is compressed; and the eyes are covered with the common skin of the head. In the Artedean system, there are four species belonging to this genus.

According to Linnæus, the *Gobius* is a genus of the thoracic order, having the eyes placed near each other, and two small holes between them, four branchiostegious rays, and the ventral fins united. This last-mentioned naturalist enumerates eight species; the *Gobius niger*, *paganellus*, *eleotris*, *aphya*, *jozo*, *pectinirostris*, *barbarus*, and *anguillaris*.

GOBIUS ASPER. An appellation given by Gesner to a species of perch, called by other naturalists *asper pisciculus*; and, by Linnæus, *perca asper*. It is distinguished among the perch tribe by Artedi under the name of the perch with eight or nine black lines on each side.

GOBIUS FLUVIATILIS. See GUDGEON.

GOBY, BLACK. This fish grows to the length of six inches. The body is soft, slippery, and of a slender form; the head is large in proportion to the size of the animal; the cheeks are inflated; the teeth are small, and disposed in two rows; and from the head to the first dorsal fin there is a small sulcus. The first dorsal fin consists of six rays; the second, of fourteen; and the pectoral fins of sixteen or seventeen, closely united. The ventral fins coalesce, and form a sort of funnel, by means of which this fish affixes itself to the rocks; the tail is moderately long and rounded; the colour is brown, or deep olive, mixed with dark streaks, and spotted with black; and the dorsal and anal fins are a pale blue, the rays being marked with minute black spots.

GOBY, SPOTTED. This species is caught in several parts of the British seas, the longest being only about three inches. The nose is obtuse; the eyes are large and prominent; the irides are sapphirine; the head is flat; the tongue is large; and both jaws are furnished with teeth. The first dorsal fin consists of six rays, and the second of eleven; the ventral fins are united; the anal fin consists of eleven rays; and the tail is even at the end. The body is of a whitish colour, obscurely spotted with ferruginous; and the rays of the dorsal fins and the tail are barred with the same colour.

GODWIT; the *Scolopax Ogccephala* of Linnæus. This bird resembles the woodcock in many respects. It is sixteen inches in length, and twenty-seven in breadth; and its weight is upwards of twelve ounces. The bill is four inches long, black at the end, and of a pale purple colour at the base; and from the bill to the eye there is a broad white stroke. The plumage of the head, neck, and back, is of a light reddish brown hue, marked in the middle with a dusky spot; the belly and the vent-feathers are white; and the tail is regularly barred with black and white. The six first quill-feathers are black; the legs, in some, are dusky; in others, a greyish blue; and the exterior toe is connected by a strong serrated membrane to the middle toe, as far as the first joint. The male is distinguished from the female by some black lines on the breast and throat, of which the latter is destitute.

These birds are taken in the fens, in the same season and manner with the ruffs and rees; and, when fattened, are esteemed a peculiar delicacy.

They appear on the British coasts in September, in small flocks; remain in the island during the winter; and, like curlews, walk on the open sands, and feed on insects.

GODWIT, CINEREOUS. This species was first discovered near Spalding, in Lincolnshire. The bill is two inches and a half long; the head, neck, and back, are variegated with ash-colour and white; the tail is slightly barred with cinereous; the throat and breast are white, except that the latter is marked with a few ash-coloured spots; and the legs are long, slender, and ash-coloured. This bird is much of a size with the green-shank, and approaches it nearly in colour; but the thickness of its bill forms a specific distinction.

GODWIT, RED. This bird is seldom seen in England, but it sometimes frequents the northern provinces. It is superior in size to the common kind: the bill is nearly four inches long, a little reflected upwards; the lower half being black, and the upper yellow. The head, neck, breast, sides, scapulars, and upper part of the back, are of a bright ferruginous colour; the head is marked with oblong dusky lines; the neck is plain; the breast, sides, scapulars, and back, are varied with transverse black bars, and the edges of the feathers with a pale cinereous brown. The middle of the belly is white; the lesser coverts of the wings are brown, the greater being tipped with white; the shafts, and the lower interior webs of the greater quill-feathers, are white; the exterior webs, and the upper half of the secondary feathers, are black, the lower half being white; the coverts, and the inferior part of the tail-feathers, are white, the upper part being black; the legs, which are also black, are four inches long; and the thighs above the knees are naked for the space of one inch and three-quarters.

GODWIT, LESSER. This species weighs about nine ounces; its length is seventeen inches, and its breadth twenty-eight. The bill bends a little upwards, and is more than three inches long; the chin is white, tinged with red; the neck is cinereous; the head is of a deep ash-colour; the back is uniformly brown; and the rump is encompassed with a white ring. The two middle feathers of the tail are black; the outermost, especially on the exterior web, are white almost to their tips; and, in the rest, the white part becomes less and less towards the centre. This bird was first described by Ray.

GODWIT, AMERICAN, GREAT. The bill of this species is about four inches long, straight and slender, and of a bright yellow colour near the base, growing gradually dusky towards the point; the nostrils are placed pretty near the head, but the eyes are more remote from the head than is usual in other birds; the head, and the upper part of the body, are marked with black and dark brown spots, except that the rump is brighter; the quills of the wings next the great ones are of an orange colour marked with small black spots; the belly and thighs are a brownish white; the thighs are naked far above the knees; and the feet and legs are covered with dusky scales. This bird is a native of Hudson's Bay.

GODWIT, RED-BREASTED. The bill of this species, which measures upwards of three inches, is long and straight, black at the point, and yellowish towards the base; on each side of the eye passes a whitish line, which rises from the bill; the top of the head, the neck, and the back, are covered

vered with dark brown feathers, variegated with black dusky lines; the rump is white; the tail is of a blackish brown colour; the primaries are a dark cinereous with white shafts; the quills towards the back are a reddish brown and black, interchangeably pectinated into each other on their webs; the covert-feathers immediately above the quills are brown with white tips; the lesser coverts are a light brown; and the interior are a dark ash, or blackish. The lower part of the neck, the breast, and the belly, are of a reddish orange-colour, with small transverse lines of black; the legs are bare of feathers above the knees; and the exterior and middle toes are partially connected by a membrane. This bird has a general resemblance to the red Godwit, which occasionally visits the British coasts. It is a native of the northern parts of America.

GODWIT, WHITE. This elegant species is wholly white, except the tail, the primaries, and the small feathers on the ridge of each wing, which have a dirty tinge. The bill turns up towards the point; and in this respect gives the bird the appearance of the avosetta kind.

GOGET. An appellation frequently given to the *gobius niger* of Linnæus, the sea-gudgeon, or rock-fish. See **GOBY, BLACK.**

GOIAVIER. A bird of the fly-catcher kind, so called by the natives of Manilla. The top of the head is black; from the superior angle of the bill rises a white transverse line, which passes above the eye, and extends to the hind-part of the head; and below this white line there is another of a black colour, which passes through the eye to the base of the lower mandible. The upper part of the body, and the tail, are of a brownish earth-colour; the primaries of the wings and the tail are somewhat darker, and sprinkled with black; the throat, the breast, the belly, and the sides, are a dirty white; the under-side of the tail is a bright yellow, of which colour also are the irides; and the feet and bill are black.

This bird, which was first described by Sonnerat, frequents the vicinities of houses, seems remarkably familiar, and lives on fruits and insects.

GOLD EYE, or GOLDEN EYE. An appellation given by naturalists to a species of duck. See **DUCK.**

GOLD-FINCH; the *Fringilla Carduelis* of Linnæus. The Gold-Finch, which is the most beautiful of our hard-billed birds, weighs about half an ounce; it's length, from the tip of the bill to the end of the tail, is five inches and a half; and the greatest expansion of it's wings is nine inches. The bill is white tipped with black, the base being surrounded with a ring of rich scarlet feathers; a black line extends from the angles of the mouth to the eyes; the cheeks are white; from the top of the head a broad black line passes on each side almost to the neck; the hind-part of the head is white; the back, rump, and breast, are of a fine pale tawny brown colour; the belly is white; the wings and tail are black, but the points of the primaries in both are white; a beautiful yellow stripe runs across the wings; the tail is about two inches long; and the legs are white.

The male is distinguished from the female by the feathers on the ridges of the wings, which are of a deep black colour; while those of the hen are a dusky brown; and the black and yellow in the wings of the latter are less brilliant than in those of the male. The young bird, before it molts,

has a grey head, and is hence called the Grey-pate by bird-catchers.

The Gold-Finch begins to construct it's nest in April, when the generality of fruit-trees are in blossom. As it excels other small birds in the beauty of it's feathers, so likewise in ingenuity. It's nest is small, but extremely beautiful: the outside consists of very fine moss curiously interwoven with other materials; and the inside is lined with fine down, having the appearance of cotton. This bird lays five or six white eggs, marked with deep purple spots on their upper ends. It is naturally fond of orchards; and frequently builds it's nest in the apple or pear-tree.

Gold-Finches being mild and gentle to a very high degree, are more easily tamed than almost any other birds. They are soon reconciled to their imprisonment in cages; where, after they have remained a considerable time, they become so much attached to them, that if their doors be opened, they will not fly away. In some parts of England they are called Draw-waters, from the facility with which they learn to draw their water when inclined to drink; for which purpose they are sometimes furnished with little ivory buckets fastened to small chains. It is very amusing to observe with what dexterity these little creatures pull up their little vessels, drink, and return them. They are much delighted with viewing themselves in looking-glasses, which are sometimes fixed by their owners to the backs of their bucket-boards; and they will frequently sit on their perches, pluming and dressing themselves with the greatest care imaginable, looking incessantly in their glasses, to see that every feather is placed in the most exact order.

The Gold-Finch is a long-lived bird, frequently reaching the age of twenty years; and Willughby mentions one which lived twenty-three. The young are tender, and therefore should not be removed from their nests till they are pretty well feathered. If a young Gold-Finch is brought up under a Canary-bird, a wood-lark, or any other singing-bird, it will readily catch their song. A cock Gold-Finch, bred from the nest, will couple with a hen Canary-bird, and their eggs will produce birds between both kinds, particularly of the song and colours of both; but this progeny will be barren. Towards winter, these birds assemble in flocks, and feed on seeds of different kinds, especially those of the thistle.

GOLD-FINCH, GREEN. This bird was in the aviary of the late Prince of Wales, but from what country it came is uncertain. It is about five inches long; the bill is of a light yellow colour, thick at the base, sharp at the point, and slightly incurvated downwards. The fore-part of the head round the bill, as far as the eyes, is a fine scarlet; the top of the head, and the hinder part of the neck, are ash-coloured; and the back, rump, and wings, are a yellowish green. The tail, when spread, is partly of a dusky hue; but, when closed, it appears red, the feathers having claret-coloured edges. The upper part of the breast is of a light yellow green hue, which gradually becomes white on the breast and belly, variegated with transverse dusky lines; and the legs and feet are flesh-coloured.

GOLD-FINCH, AMERICAN. The bill of this bird nearly resembles that of the common Gold-Finch both in shape and colour: the eyes are of a dark hazel-colour; the forehead is covered with

black feathers; the rest of the head, the neck, breast, and back, are invested with bright yellow feathers; the thighs, the lower belly, and covert-feathers both above and beneath the tail, are a yellowish white; the lesser covert-feathers of the wings are yellow without, and whitish within; the rest of the wing-feathers are black; the tail is composed of twelve feathers of a blackish hue; and the legs and feet are reddish. The hen differs principally from the cock in having less beautiful and vivid shades of the same colours.

This bird was brought from New York. Edwards kept one of them for several years; and observed that it molted twice annually; namely, in the months of March and September.

GOLD FISH; the *Cyprinus Auratus* of Linnaeus. Gold Fishes, though natives of China, are quite naturalized in this kingdom, and breed as freely in open waters as the carp. They were first introduced into England about the year 1691; but were not generally known till 1728, when great numbers were imported, and circulated round the vicinity of London; from whence they have been distributed to the remotest parts of the country.

The Gold Fish, with respect to the figure of it's body, bears a strong resemblance to the carp. It sometimes grows to the length of eight inches in this kingdom; but in it's native country it arrives at the size of the herring. The nostrils are tubular, and form a kind of appendages. The dorsal fin and the tail vary greatly in shape; the latter is naturally bifid; but in many it is observed to be trifid, and in some quadrifid. The anal fins form the most distinguishing characters of this species, being placed opposite each other, like the ventral fins; whereas, in other fishes, they are arranged behind each other.

The colours of Gold Fishes are liable to the greatest variations: some are marked with a fine blue, brown, or bright silver; but the general predominant colour is that of gold of a most brilliant appearance. However, it is by no means necessary to be very particular in the description of animals which are so easily examined; and indeed prints only can convey an adequate idea of these beautiful, but varying fishes, to those who have not an opportunity of surveying them in an animated state.

The most admired kinds of Gold Fishes are caught in a small lake in the province of Che-Kyang. In that country, every person of fashion keeps them for his amusement, either in porcelain vessels, or in such small basons as decorate the courts of the houses in China. The extreme beauty of their colours, and their lively motions, afford great entertainment; especially to the ladies, whose pleasures, by reason of the narrow policy of that country, are very solitary and confined.

GOLD FISH is also an appellation given by some authors to the *alausa*, or shad, from the yellow colouring which frequently adorns it's gills.

GOLD SINNY. This fish, which is caught on the Cornish coasts, in the whole form of it's body, lips, teeth, and fins, bears a striking resemblance to the wrasse. It never exceeds a palm in length. Near the tail there is a remarkable black spot; and the first rays of the dorsal fin are tinged with black. The dorsal fin consists of sixteen spiny and nine soft rays, the pectoral of fourteen, the anal of three spiny and eleven soft, and the

ventral of six; and the tail is almost even at it's extremity.

GOLDEN EYE. A species of fly, called also *Chrysops* and the Stinking Fly. It is a very beautiful insect, about three-quarters of an inch long; the body is slender, and of a greenish yellow colour; the wings are large and transparent; and the eyes, which are large, exhibit the appearance of gold. This animal is produced from a worm that feeds on the plant lice; and, when crushed, it emits an intolerable stench, from which circumstance it receives one of it's common names.

GOMATUS. An appellation given by many of the ancient writers to the gurnard, more frequently called gurnardus.

GONAMBÜSCH. A name whereby some authors express the humming-bird, the smallest of all the feathered tribe.

GONDOLA SHELL. An appellation sometimes given to a peculiar species of shell of the *concha globosa* kind. It is of the genus of *dolium*, and comprehends seven species.

GONGRUS. A name given by Ælian, Apian, and some others of the Greek writers, to the conger, or sea-eel.

GONINON. A French appellation for the common gudgeon.

GONORYNCHUS. A species of *cyprinus*, having eight rays in the anal fin, a cylindric body, and a bifid tail. It is caught in the seas bordering on the Cape of Good Hope.

GOOSANDER. This bird frequents the rivers and lakes of Great Britain, particularly in severe winters; but it's native regions seem to lie in higher northern latitudes. It dives with great dexterity, and subsists almost entirely on fish. The length of the male is about two feet four inches, the breadth about three feet two inches, and the weight four pounds. The bill is three inches long, narrow, and finely serrated; and both the irides are red. The head is large; and the feathers on it's hind-part are long and loose. The colour is black, beautifully glossed with green. The upper part of the neck is of the same colour with the head; the lower part, and the belly, are a fine pale yellow; the upper part of the back, and the lower scapulars, are black; the lower part of the back, and the tail, are ash-coloured, the latter consisting of eighteen feathers. The primaries are black; the secondaries are white, some of them being edged with black; the coverts, at the insertion of the wing, are black, the rest being white; and the legs are of a deep orange-colour.

The female, which is frequently called the dundiver, and has generally been esteemed a different species, is less than the male: the head and the upper part of the neck are of an iron colour; the throat is white; and the feathers on the hind-part of the head form a pendent crest. The back, the coverts of the wings, and the tail, are of a deep ash-colour; the greater quill-feathers are black, the lesser being white; and the breast and belly are white tinged with yellow.

GOOSANDER, RED-BREADED. This species which breeds in Scotland and the Hebrides, weighs about two pounds; the length is one foot nine inches, and the breadth two feet seven inches. The bill is three inches long; the lower mandible is red, and the upper dusky; the irides are a purplish red; the head and throat are a beautiful varying black and green, the former being adorned with

with a long pendent crest of the same colour. The upper part of the neck, of the breast, and the whole belly, are white; the lower part of the breast is ferruginous, spotted with black; the upper part of the back is black; and near the insertion of the wings there are some white feathers, edged and tipped with black. The exterior scapulars are black, the interior being white; the lower part of the back, the coverts of the tail, and the feathers that cover the thighs, are elegantly marked with wavy lines of black; the coverts on the ridges of the wings are dusky; the greater coverts are half black, and half white; the secondaries next the quill-feathers are marked in the same manner; and the quill-feathers are dusky. The tail is short and brown; and the legs, which are strong, are orange-coloured.

In the female, the upper part of the neck is of a deep rust-colour; the crest is short; the throat is white; the fore-part of the neck and breast are marbled with deep ash-colour; the belly is white; the great quill-feathers are dusky; the secondaries are black, white, and dusky; and the back, scapulars, and tail, are ash-coloured.

GOOSE. In the Linnæan system, this forms a distinct order of birds, including the swan, the Goose, and the duck tribes; between which there is a great similarity, particularly the duck and the Goose species, which approach so nearly to each other, that it may not be improper to mark the distinctions. The distinguishing characters of the Goose are these: its body is bigger, its wings are larger, its neck is longer, its bill is thicker at the base, its legs are placed more forwards on the body, and its rump is encircled with a white ring. By these marks the duck and the Goose kinds may be discriminated; and though the former may sometimes equal the latter in size, there still remain other sufficient and obvious distinctions.

The bill is the first great distinction of the Goose kind from all the feathered tribe. In other birds, it is round and wedge like, or crooked at the end: in all the Goose kind it is flat and broad, formed for the purposes of skimming ponds and lakes of the mantling weeds which grow on their surfaces. The bills of other birds are composed of a horny substance throughout, formed for piercing or tearing: these birds have their inoffensive beaks sheathed with a skin which entirely covers them; and are only adapted for shovelling up their food, which is chiefly of the vegetable kind.

Though birds of the Goose kind do not reject animal food when offered them, they contentedly subsist on vegetable, and seldom seek any other. They are easily provided for; and, wherever there is water, they are sure to find plenty. All the other web-footed tribes are continually voracious, and incessantly preying: but these lead more innocent lives; the weeds on the surfaces of waters, or the insects at their bottoms; the grass by the banks, or the fruits and corn in cultivated grounds; are sufficient to satisfy their gentle appetites.

As their food is chiefly of the vegetable kind, so their fecundity is in proportion. Predaceous animals, whether birds or quadrupeds, are generally unfruitful. Nature, which has supplied them with powers of destruction, has denied them fertility. But the case is far otherwise with respect to those harmless animals now under consideration: they seem formed to fill up the chasms in animated nature caused by the voraciousness of

others; they breed in great abundance, and lead their young to the pools as soon as they are excluded from their eggs.

The flesh of this tribe is nourishing and wholesome. The swan was regarded as a great delicacy among the ancients; but the Goose was abstained from, as totally unfit for food. Modern manners have inverted tastes: the Goose is now become the favourite; and the swan is seldom brought to table, unless for the purpose of ostentation. At all times, however, the flesh of the duck has been in high esteem; the ancients even regarded it more highly than the moderns: we are contented to eat it as a delicacy; the ancients considered it as medicinal; and Plutarch assures us, that Cato kept his whole family in health by feeding them with duck whenever they happened to have symptoms of indisposition.

The valuable qualities of great fecundity, easy sustenance, and salubrious nourishment, have operated on man to take these fowls from a state of nature, and render them domestic. How long they have been reclaimed from their original independence, is not easily ascertained; for, from the earliest accounts, they have held their present rank. The time indeed must have been very remote; so many changes have been wrought in their colours, their figures, and even their internal formations, by human cultivation.

The different kinds of these birds, in a wild state, are simple in their colourings. When a faithful description of the plumage of a wild Goose, or wild duck, is given, it will to a feather correspond with that of any other; but, in the tame kinds, no two of any species are exactly alike: different in size, colour, and frequently in form, they appear to be the mere creatures of art; and, having been so long dependent on man for support, they seem to assume forms suited to his pleasures or necessities.

GOOSE, WILD. The Goose, in its wild state, always retains the same marks: the whole upper part is ash-coloured; the breast and belly are of a dirty white; the quill-feathers and the tail are dusky, the latter being edged with white; the bill is narrow, black at the base and tip, and red in the middle; the legs are of a saffron colour; and the claws are black.

Wild Geese are supposed to breed in the more retired parts of the north of Europe; and, at the approach of winter, to descend into more temperate regions. These birds are often seen, in flocks of fifty or a hundred, flying at very great heights, and preserving great regularity in their motions; sometimes forming a straight line; and, at others, assuming the shape of a wedge, which is supposed to facilitate their progress. Their cry is frequently heard when they are at an imperceptible distance above us; and it is probable that this is a note of mutual encouragement, as they seem to exert it when they alight during those journeys. When on the ground, they range themselves in a line, after the manner of cranes; and seem to have descended rather for the sake of rest than for any other refreshment. Having continued in this situation for an hour or two, one of them has been heard to sound a kind of charge, by means of a loud note, which has been punctually attended to by the others; and the whole flock has immediately pursued their journey with renewed alacrity.

The Wild Goose, and many other varieties, agree in one common character of feeding on vegetables,

getables, and of being remarkable for their fecundity. But the tame Goose is the most fruitful of the kind: having fewer enemies, it leads a safer and more plentiful life; it's prolific powers increase in proportion to it's ease; and it is frequently known to lay upwards of twenty eggs; but the Wild Goose seldom lays more than eight.

GOOSE, TAME. The Tame Goose, like other domestic animals, varies extremely in it's colours. It seems to derive it's origin from the grey-lag, the only species which the Britons could take young and familiarize. The tame female is very assiduous in hatching her eggs; during which time she receives two or three visits every day from the gander, who sometimes drives her from the nest, and takes her place with great state and composure. When the young are excluded, the pride of the gander is inconceivable: considering himself as a champion to defend his young, and to keep off even the suspicion of danger, he pursues dogs, and even men, that never mean to molest him; and, when he has attempted to attack a mastiff, or any other animal, to whose contempt alone he is indebted for his safety, he returns in triumph to his female and her brood, screaming and clapping his wings, as if conscious of victory.

The flesh of the young Goose is certainly very agreeable food. But the value of this bird is greatly increased by it's feathers: not to mention the quills, so essentially necessary for all ranks, and in almost every situation, the feathers are highly valuable in another capacity, as the warmest and softest beds are formed of them.

Vast quantities of Tame Geese are kept in the fens of Lincolnshire, which are plucked, for the sake of their feathers, several times in a year. These feathers are a considerable article of commerce; but those of Somersetshire are most valued by the trade; as those of Ireland are reckoned the worst.

In Lincolnshire, an individual will sometimes possess a thousand old Geese, each of which will rear seven; so that, towards the end of the season, he will become master of eight thousand. During the breeding season, these birds are lodged in the same houses with the inhabitants, and even in their bed-chambers: in every apartment there are three rows of coarse wicker-pens, placed one above another; and each bird has it's separate lodge, of which it keeps possession during the season of incubation. A person, called a Goose-herd, attends the flock, and twice a day drives the whole to water; after which he conducts them back to their habitations, assisting those that live in the upper stories to ascend their nests, and taking care never to misplace a single bird.

These Geese are generally plucked five times during the year: the first plucking commences at Lady-day, for feathers and quills; and the same is renewed, for feathers only, four times more between that term and Michaelmas. The old Geese quietly submit to the operation, but the young ones are very noisy and restless. If the season proves cold, numbers of them die by this barbarous custom; particularly the young, which, though hardly two months old, undergo the same process.

Vast numbers of Geese are annually driven to London, for supplying the markets; among which are all the superannuated Geese and ganders, whose flesh proves unusually tough and dry.

Geese are very profitable to the peasant on account of their flesh, grease, and feathers. They

live on commons where no other animals could procure subsistence; and in general require very little attendance, provided they have access to plenty of water. They lay from twelve to sixteen eggs, and sit about thirty days; but, when the weather proves favourable, they hatch in about twenty-six days. After the goslings are excluded, some people keep them in their houses ten or twelve days, feeding them with curds, barley-meal, and bran; and, when they have acquired some strength, permit them to go abroad four or five hours in the day, and then take them in again, till they are large enough to defend themselves from vermin. Others put the young brood out at first, and perhaps with equal success.

GOOSE, GREY LAG. This is the largest species found in Britain. It weighs ten pounds; it's length is two feet nine inches; and the expansion of it's wings is five feet. The bill is large and elevated, and of a flesh-colour tinged with yellow; the head and neck are cinereous mixed with a light yellow; and the hind-part of the neck is a very pale yellow. The breast and belly are whitish, clouded with grey; the back is grey; the lesser coverts of the wings are almost white, the middle row being a deep cinereous; the primaries are grey, tipped with black and edged with white; the secondaries are entirely black; and the scapulars are of a deep ash-colour edged with white. The coverts of the tail and the vent-feathers are a pure white; the middle feathers of the tail are dusky tipped with white; the exterior feathers are almost wholly white; and the legs are of a flesh-colour.

This species resides constantly in the fens, where it breeds, and produces eight or nine young, which are easily tamed, and esteemed most excellent food. The old Geese which are shot are frequently plucked, and sold for tame ones; but their flesh is coarse and tough. Towards winter, they collect in great flocks; but they never migrate into any other country. Indeed, this species seems to be the origin of the domestic Goose; and is the only one which appears capable of being domesticated.

GOOSE, BEAN; the *Anas Anser Mansuetus Ferrus* of Linnæus. This bird is about two feet seven inches in length; the extent of it's wings is nearly five feet; and it's weight is upwards of six pounds. The bill is much compressed near the end, of a pale colour in the middle, and black at the base and nail: the nail bears some resemblance to a horse-bean, and hence this species receives it's name. The head and neck are of a cinereous brown hue tinged with ferruginous; the breast and belly are a dirty white, clouded with cinereous; the sides and scapulars are a dark ash edged with white; the back is of a plain ash-colour; the coverts of the tail are white; the lesser coverts of the wings are a light grey, the middle being deeper, tipped with white; the primaries and secondaries are grey tipped with black; the feet and legs are saffron-coloured; and the claws are black.

The Bean Goose arrives in Lincolnshire in autumn, and disappears again in May. It never breeds in this country; but retreats to the sequestered wilds in the north of Europe.

GOOSE, WHITE-FRONTED; the *Anas Erythropus* of Linnæus. This bird is frequently seen, during winter, in the marshes of Cheshire, and in all the northern world as far as Hudson's Bay.

It

It disappears in this kingdom very early in the spring, none being ever seen after the middle of March.

The weight of this species is about five pounds and a half, the length two feet four inches, and the extent four feet six inches. The bill, which is elevated, is of a pale yellow colour with a white nail; the forehead is white; the head and neck are a cinereous brown, tinged with ferruginous; the coverts of the wings, and the primaries and secondaries, are somewhat darker than the head and neck; the tail is principally ash-coloured; the breast and belly are a dirty white marked with great spots of black; the legs are yellow; and the claws are whitish.

GOOSE, CANADA. This species is shaped nearly like the common tame Goose, but is somewhat longer: the bill is of a black, or deep lead-colour; the eyes are dark; the head and neck are black, except a white mark on the under-side of the former, which becomes narrower on the sides, and terminates in points about the place of the ears; the back, wings, and part of the breast and belly, are of a dark brown hue, the edges of the feathers inclining to ash-colour; and the primaries are almost black. The lower part of the back and rump is black; the upper coverts of the tail are white; and the tail-feathers are black. The fore-part of the breast, the lower belly, and the covert-feathers beneath the tail, are white; and the legs and feet are of a dark lead-colour.

GOOSE, BLUE-WINGED. This bird is smaller than the common tame Goose: the bill is two inches long, and of a red colour; the head, and the greatest part of the neck, are white; the back, the breast, and the lower part of the neck, are a dark brown; the tail is of a brownish ash-colour; and the belly and thighs are white. The legs are bare of feathers just above the knees; the three forward toes are webbed; the legs and feet are red; and the toes are black. This species is a native of Hudson's Bay: it continues in that country during the breeding season; but, when the severity of winter renders its subsistence precarious, it retires to more southerly climes.

GOOSE, MUSCOVY. This species is three feet long from the tip of the bill to the end of the tail; the expansion of the wings is nearly five feet; and the weight is about fourteen pounds. The bill is orange-coloured, with a large tubercle of the same colour on the base of the upper jaw; the pupil of the eye is black; the irides are of a golden hue; and beneath the bill hangs a large bag. The top of the head, and the sides of the neck, are of a dark brown hue; and the upper part of the back is of the same colour, except that the exterior edges of the feathers are somewhat lighter. The wings, and the rest of the body, are white, except a few dark feathers on the upper part of the tail; the legs and feet are of a fine orange-colour; and the claws are black. The female differs from the male only in having a smaller tubercle on the upper mandible.

GOOSE, GAMBO, OR SPUR-WINGED. This fowl bears a strong resemblance to the Muscovy duck. The bill is long and reddish; the head and belly are principally white; and the back is of a shining dark purple colour. On the head there is a red carbuncle or wart; but the most distinguishing mark is a strong spur on the first joint of the wings.

GOOSE, ANTARCTIC, WHITE-WINGED. This

species, which is a native of the Falkland Isles, is three feet four inches long; the bill is small and dusky; the head, the neck, and the whole under-side of the body, are of a snowy whiteness; but the upper part of the back is barred with black and white. The coverts of the wings are white; the secondaries are crossed with a broad dusky bar, and another of white with a green speculum; the primaries are dusky; the middle feathers of the tail are white with a gloss of green, the rest being white; and the legs are black.

GOOSE, MOUNTAIN, OF SPITZBERGEN. This variety is about the size of the common Goose: the Gander has black and white spotted feathers; but the plumage of the Goose resembles that of the partridge.

These birds are of a gregarious nature: they build their nests in low islands with the feathers of their own bellies mixed with moss; and lay five or six eggs of a pale green hue, somewhat larger than those of the duck.

GOOSE, MOUNTAIN, OF THE CAPE OF GOOD HOPE. This species is larger than any of the European kinds; and the plumage of the wings, and the top of the head, are of a very beautiful shining green colour.

The Water-Goose of the same country resembles the common Goose in its colours, except that it has a brownish stripe mixed with green on the back. The flesh of this and the preceding species is esteemed excellent.

GOOSE, MAGELLANIC. A name given by Clusius to a bird of the diver kind. It is a marine fowl, it grows to the size of the largest Goose, and is usually very fat. The back is black; the belly is white; and the neck, which is short and thick, is encircled with a ring of white feathers. The skin is thick and tough, like that of the hog; and it has only two coriaceous fans, instead of wings, hanging from its sides, like two arms, covered with a few feathers, partly black, and partly white. These members, though they cannot afford the animal protection by flight, are nevertheless very beneficial in swimming; and indeed this bird lives wholly in the water, except during the season of incubation.

GOOSEBERRY-WORM. An insect frequently found among Gooseberry-bushes, usually supposed to be a caterpillar, but differing essentially from that genus of animals, being one of the false chenilles of the French. It has a round head, and twenty-two legs; and, finally, becomes a four-winged fly. The worm is at first of a greenish colour, with some yellow variegations, and several black tubercles; but, on the last change of its skin, it becomes whitish or cream-coloured, and loses its tubercles.

GOR-COCK. A bird of the gallinaceous kind, called by some the lagopus altera; and, by the British, the moor-cock, or red-game. It is of the shape of the partridge, but considerably larger; the beak is black and short; and there is a remarkable bare space over the eyes, of a fine bright red colour, surrounded, in the male, by a prominence of the same vivid colour, equally destitute of feathers, and fimbriated like a cock's comb. The male is also distinguished from the female by black plumage at the base of the bill, interspersed with frequent white spots, and some large ones near the origin of the under-chap. The male is also of a deeper red colour in every part; and, on the throat and breast, is of a fair red, without the admixture

of any other colours. The head, neck, back, and wings, are all variegated with red and black; and the breast and belly are of the same colours, except that there are some variegations of white on the former. The legs and feet are covered with very long and thick plumage to the very extremities of the toes; the wings are brownish, with some reddish spots; and the tail is almost wholly black.

This bird, which generally frequents the tops of the highest hills, is very common in Derbyshire, Yorkshire, and Wales, where it feeds on mountain-berries and the tender shoots of the heath. It lays seven or eight eggs, of a mixed red and black colour, entirely covered with small spots, except one or two minute spaces near the smaller ends. The young brood follow the hen during the whole summer; but, in the winter, they join in flocks of forty or fifty, when they are remarkably shy and wild.

The Italians call this bird and the lagopus by the common name of the francolino: and indeed Ray imagines that the lagopus of Pliny and this bird are really of the same species, though different in colour; but Pennant observes, that the account transmitted by Pliny seems too brief and indeterminate to enable us to judge what species he intended; and that the Italian francolino is not the same with our grouse, seems evident from the accurate figure from the life exhibited by Edwards.

GORAI. A name sometimes used to express the more common species of the carassius.

GOSHAWK; the *Falco Palumbarius* of Linnæus. This bird is larger than the common buzzard, and of a longer and more elegant conformation: the bill is blue towards the base, and black at the tip; the skin at the base of the bill is of a yellowish green colour; over each eye there is a long white line; and on each side of the neck a bed of broken white. The head, the hind part of the neck, the back, and the wings, are of a deep brown colour; the breast and belly are white beautifully marked with numerous transverse bars of black and white; the tail is long, and of a brownish ash-colour, marked with four or five dusky bars placed at considerable intervals; the legs are yellow; and the claws are blackish.

Willughby distinguishes this species and the sparrow-hawk by the name of short-winged hawks, because their wings, when closed, do not reach so far as the end of their tails. The Goshawk was in high estimation while falconry flourished, and taught principally to pursue cranes, geese, pheasants, and partridges. It breeds in Scotland, where it builds its nest in lofty trees: it is extremely destructive to game, darting through the woods after its prey with vast impetuosity; but if the object of its pursuit eludes its first attack, it almost immediately desists, and perches on some bough till new game presents itself.

GOURD-WORM. The English name of a species of Worm found in the intestines of several animals; and which receives its name from its resemblance to the seed of the gourd.

GOWRY. The English appellation for the cyprea; a genus of univalve shells, suboval, and blunt at each end; having the aperture the whole length of the shell, longitudinal, linear, and toothed. The inclosed animal is a slug.

GOWRY BIRD. This bird, which appears to be a native of the East Indies, is called by Albin the Chinese sparrow. The bill is of a leaden

colour, and resembles that of the green-finch; the eyes are of a dark hazel-colour; the head, neck, beginning of the breast, back, wings, and tail, are a dark reddish brown; the fore-part of the neck has somewhat of a purplish cast; the greater quills are of a deeper brown hue than the rest of the wings; the rump is of a lighter greenish brown; the breast and the sides of the belly are black thinly sprinkled with small round white spots of the size of a rape-seed; the middle of the belly, the thighs, lower belly, and covert-feathers under the tail, are light brown or dirty white; and the legs and feet are of a blueish, or lead-colour.

GRAINING. A fish of the dace kind, caught in the River Mersey near Warrington. It bears a strong resemblance to the dace, but is more slender, and the back is straighter. Its usual length is about seven inches and a half. The colour of the back is silvery with a blueish cast; the eyes, and the ventral and anal fins, are a pale red; and the pectoral fin is a deep red.

GRALLÆ. An order of birds analogous to the bruta, in the class of mammalia, in the Linnæan system; the characters of which are these: the beak is subcylindric and somewhat obtuse; the tongue is entire and fleshy; and the thighs above the knees are bare.

This order contains eighteen genera; among which are the phœnicopterus, the ardea, the scolopax, the tringa, &c.

GRAMPUS; the *Delphinus Orca* of Linnæus. This fish is caught from fifteen to twenty-five feet in length: it is remarkably thick; and so extremely voracious, that it will not even spare the porpus, a congenerous fish. It is also said to be very inimical to the whale; and that it will hang on it, like a dog on a bull, till the animal roars through pain. The nose is flat, and reverted at the extremity; there are thirty teeth in each jaw; those before being blunt, round, and slender; the hinder sharp and thick; and between each there is a space adapted to receive the teeth of the opposite jaw when the mouth is closed. The spout-hole is in the top of the neck; and, with respect to the number of fins, this fish agrees with the dolphin. The back is black, but on each shoulder there is a large white spot; the sides are marbled with black and white; and the belly is of a snowy whiteness.

These animals sometimes appear on the British coasts; but are found in much greater numbers off the North Cape of Norway, whence they are also called the North Capers. Like the rest of the cetaceous tribes, they swim against the wind; and are observed to be much disturbed, and to tumble about with unusual violence, on the approach of a storm.

Linnæus and Artedi assert, that this species is furnished with broad serrated teeth; a quality which seems peculiar to the shark tribe: but Sir Robert Sibbald, who had an opportunity of examining and figuring the teeth of this fish, and from whom we have copied our description, gives a very different account of them.

GRANIVOROUS. An epithet given to animals which feed principally on grain: such are chiefly of the feathered kind.

GRASHOPPER. A species of gryllus, commonly called the cicada, though under that term the ancients expressed a very different animal from that which the moderns call the Grasshopper; for whereas the insect now under consideration

deration is sufficiently active in hopping through long grafs, the cicada did not poffefs this power, but either walked or flew. Their notes alfo are very different; that of the cicada being produced by a kind of buckler placed beneath the belly of the male; and that of the Grafhopper by a tranfparent membrane which covers a hole at the bafe of it's wings. There is ftill a greater variety in all thefe with regard to fhape and colour: fome are green, fome livid, and others variegated; fome have long legs, others fhort; fome fing, others are mute; fome are perfectly harmlefs; and others are fo extremely mifchievous, that they are regarded in fome countries as one of the fevereft vifitations of incensed Divinity.

None of this variegated tribe is better known to Britons than the little Grafhopper that breeds in great plenty in our meadows, and prolongs it's chirping note through the fummer: the hiftory therefore of this fpecies will fufficiently elucidate that of all the remainder.

This animal is green, except a line of brown which ftreaks the back, and two pale lines under the belly and behind the legs. It may properly be divided into the head, the corfelet, and the belly. The head is oblong, prone, and fomewhat refembles that of the horfe; the mouth is covered by a kind of round buckler jutting over it, and armed with brownifh teeth hooked at the points; the antennæ, or feelers, are very long, tapering off to a point; and the eyes are black and prominent. The corfelet is elevated, narrow, and armed above and below with two ferrated fpires; the back is covered with a ftrong buckler, to which the mufcles of the legs are firmly bound, and round thefe mufcles the veffels of refpiration are feen; the laft pair of legs are much longer and ftronger than the firft two pair, and fortified by thick mufcles extremely well adapted for leaping. There are four wings; the anterior ones fpringing from the fecond pair of legs, the pofterior from the third pair; the hinder wings are much finer and more expanfive than the foremoft, and are therefore the principal instruments of flight. The belly, which is very large, is compofed of eight rings, and terminated by a forky tail covered with a kind of down. When examined internally, befides the gullet, a fmall ftomach is perceptible; behind that, a very large one, wrinkled and furrowed within-fide; and, ftill lower down, a third. Thus, it feems not without reafon, that creatures of this order are faid to chew the cud, as they fo much refemble ruminant animals in their internal conformation.

Soon after Grafhoppers affume their wings, they fill the meadows with their notes; which, like thofe among birds, are generally confidered as the calls of courtfhip. The male only is vocal; and, on examining the bafes of his wings, a little hole is difcoverable in his body, covered with a fine tranfparent membrane, which is fupposed by Linnæus to be the instrument of found; while other naturalifts are of opinion, that it arifes from the friction of the two hind legs againft each other: however that may be, no fooner is the note heard, than it is returned by another; and the two little animals, after a long conteft in finging, are fometimes obferved to meet and fight desperately. The female is generally the reward of victory: for, after the combat, the male feizes her behind the neck with his teeth, and thus retains her for feveral hours, till the bufinefs of fecundation is compleated; and on fuch occafions they are fo firmly united, that it

is almoft impoffible to feparate them without laceration.

Towards the latter end of autumn, the female prepares to deposit her burden: her body is then obferved to be greatly diftended with eggs, fometimes to the number of one hundred and fifty. In order to form a proper lodgment for thefe in the earth, Nature has provided her with an instrument at her tail, which fhe can fheathe and un-fheathe at pleafure: with this fhe pierces the earth to the greateft depth poffible; and into the opening thereby made fhe drops her eggs one after another. The continuation of pofterity being thus provided for by the female Grafhopper, fhe does not long furvive; for, as the winter approaches, fhe gradually withers, and dies through a total decay. Some authors affert, that fhe is killed by the cold; and others, that fhe is confumed by worms: certain, however, it is, that neither males nor females are ever known to outlive the winter. In the mean time, the deposited eggs continue unaltered, either by the feverity of the feafon or the delay of fpring: they are oval, white, and of a horny confiftence; their fize nearly equals that of a grain of anife; and their internal fubftance is a whitifh, vifcous, and transparent fluid. When the genial warmth of the vernal fun begins to vivify all nature, the eggs feel his benign influence; and, generally near the beginning of May, an infect is produced from each about the fize of a flea: thefe are at firft of a whitifh colour; but, at the end of two or three days, they turn black; and, foon after, to a reddifh brown. From their very origin, they exhibit the appearance of Grafhoppers without wings; and hop among the grafs, as foon as excluded, with furprizing agility.

The Grafhopper having continued above twenty days from it's exclusion without the ufe of it's wings, which are folded up in it's body, at length prepares for it's emancipation; and, in order to make the neceffary difpofitions for it's approaching change, it ceafes from it's graffy food, and fearches out fome convenient place, under a thorn or thiftle, where it may be protected from an accidental fhower. It then exhibits the fame laborious writhings, heavings, and palpitations, which are perceptible in all other infects at this important revolution of their lives: it fwells up it's head and neck; then feems to draw them in again; and thus for fome time it alternately exerts it's powers to get free. At length, the fkin which covers the head and breaft is obferved to divide above the neck; the head firft iffues out from the burfting fkin; and the efforts of the animal ftill continuing, the other parts follow fucceffively: fo that the little infect foon extricates itfelf totally from the old fkin, which it leaves adhering to the plant under which the transformation was performed.

The Grafhopper, thus difengaged from it's exterior fkin, appears in it's perfect form; but at this period it is extremely feeble, and it's body fo foft and tender, that it may be modelled like wax. It is now of a greenifh white colour, which becomes more vivid as the moifture on the furface dries up. Still, however, the infect difcovers no figns of life, but appears quite fpent and overcome with it's exertions. During this time, the body continues drying, and the wings unfolding to their greateft expansion; and a curious obferver may perceive them, fold after fold, opening to the fun, till at laft they become longer than the two hinder legs. The
body

body of the insect is also lengthened during this operation, and becomes more beautiful than before.

These insects are generally vocal in the middle of summer; and, about sun-set, their notes are much louder than during the heat of the day. They uniformly feed on grass; and, if their bellies be pressed, they will immediately return the juices of the plants on which they have last fed. Though averse to the exertions of flight, and slow in their aerial excursions, particularly when the weather is moist or cool, they are sometimes seen to fly to considerable distances. If caught by one of their hinder-legs, they speedily disengage themselves from it, leaving the member behind: this, however, does not grow again, as is usual with crabs and spiders; for, being animals whose duration is limited to a single year, they have not sufficient time for repairing those accidental misfortunes. The loss of their legs also prevents them from flying. When roughly handled, they bite with great severity; and, in the act of flying, make a particular noise with their wings.

Such are the habits and nature of those little vocal insects, which swarm in our meadows, and enliven the scene. The larger kinds differ from them only in size, in rapidity of flight, and their powers of injuring mankind by the devastations they commit on the produce of the earth. See LOCUST.

GRAY. A provincial appellation for the badger.

GRAY is also used in some provinces to express a species of wild duck, more commonly known by the name of the gadwall.

GRAYLING, or UMBER; the *Salmo Thymallus* of Linnaeus. This is a very voracious fish, and eagerly seizes a bait. It swims with rapidity, disappears like the transient passage of a shadow, and from thence has probably received the name of Umbra. It's figure is elegant; the body, which is longer and flatter than that of the trout, seldom exceeds eighteen inches; the head is dusky; the coverts of the gills are of a glossy green colour; the back and sides are a fine silvery grey, whence it receives the name of Grayling; but, when the fish is just caught, they are slightly varied with blue and gold. The lateral line is straight; the scales are large, their lower edges being dusky, and forming regular rows from head to tail; the top of the back fin is red, the lower part being a blueish purple; the ventral fins are blueish, spotted with black; and the tail is much forked. The lips are rough like a file; the tongue is smooth; and the gills are quadruple.

The Grayling haunts clear and rapid streams, particularly those flowing through mountainous countries. It is found in the rivers of Derbyshire; in some of the more northern streams; in the Hodder, the Dove, the Trent, the Derwent, the Wye, and the Lug. It is also very common in Lapland, where the inhabitants make use of it's entrails instead of runnet, to curdle the milk of the rein-deer. It's flesh, which is firm, wholesome, and agreeable, may be eaten at all seasons of the year, but is in it's greatest perfection in the month of December.

GREBE. In the Linnæan system, the Grebe is a species of the *Colymbus*, comprehending several varieties; the distinguishing characters of which are these: the bill is long, straight, and sharp-pointed; there is no tail; and the legs are flat,

thin, and ferrated behind with a double row of notches.

GREBE, GREAT-CRESTED; the *Colymbus Cristatus* of Linnaeus. This species weighs about two pounds and a half; it's length is twenty-one inches, and the expansion of it's wings thirty. The bill, which is upwards of two inches long, is red at the base and black at the point; between the bill and the eyes there is a stripe of black naked skin; the irides are of a fine pale red colour; and the head is adorned with a large dusky crest, separated in the middle. The cheeks and the throat are surrounded with a long pendent ruff of a bright tawny colour edged with black; the chin is white; above the eye there is a white line; the hind-part of the neck, and the back, are of a sooty hue; and the rump is covered with long soft down, which supplies the place of a tail. The covert-feathers on the second and third joints of the wings and the secondaries are white; all the other wing-feathers are dusky; the breast and the belly are of a most beautiful silvery white colour, glossy as satin, and extremely elegant; the plumage under the wings is dusky, blended with tawny; the outside of the legs, and the bottom of the feet, are dusky; and the insides of the legs, and the toes, are a pale green.

This bird, from the shortness of it's wings and feet, being ill adapted for flying or walking, seldom quits the water, and chiefly inhabits those broad shallow pools where it's faculty of swimming can be turned to the greatest advantage in fishing. It principally frequents the meres in Shropshire and Cheshire, where it breeds among reeds and flags, in a floating nest kept steady by the weeds of the margin. The female is said to nurse her young very carefully, being observed to feed them most assiduously with small eels; and, when fatigued, to carry them on her back, or under her wings.

This species preys on fish, and is almost perpetually diving. It shews only it's head above the water; and is very difficult to be shot, as it sinks on the most distant appearance of danger. It is never seen on land; and, though very frequently disturbed, it never quits the lake where, by diving and swimming, it is taught to expect food and security.

The Grebe is chiefly sought after for the skin of it's breast, the plumage of which is made into tip-pets. But the skins of these birds are out of season about February, when they lose the brightness of their colour; and, during the time of incubation, their breasts are entirely bare. Their flesh is excessively rank; but the fat is esteemed highly efficacious in rheumatic pains, cramps, and paralytic contractions.

GREBE, LESSER, CRESTED, OR EARED; the *Colymbus Auritus* of Linnaeus. This species is about a foot long, and twenty-two inches broad; the bill is black, slender, and slightly recurved; the head and neck are black; the throat is spotted with white; the whole upper side is of a blackish brown colour, except the ridge of the wing above the first joint, and the tips of the quill-feathers, which are white; and the breast, belly, and inner coverts of the wings, are white. A tuft of long loose feathers hangs backwards, on each side, behind the eyes; the irides are crimson-coloured; a bare stripe of red extends from the bill to the eyes; and the legs are a dusky green.

These birds breed in the fens near Spalding in Lincolnshire;

Lincolnshire; they build their nests in the same manner as the greater-crested Grebe; and lay four or five small white eggs.

GREBE, TIPPET; the *Colymbus Urinator* of Linnæus. This species has sometimes been seen in Cheshire, but is by no means common in England. The Tippet Grebes chiefly frequent the Lake of Geneva, where, during the winter season, they appear in flocks of ten or twelve; and the inhabitants of the margins of the lake kill them for the sake of their beautiful skins. Their undersides, being dressed with the feathers adhering to them, are manufactured into muffs and tippets; and each bird is valued at about fifteen shillings.

The Tippet Grebe differs from the great-crested Grebe in being somewhat less, and in wanting the crest and ruff. The sides of the neck are striped downwards from the head with narrow lines of black and white; but, in other respects, the colours and marks exactly correspond with those of the great-crested Grebe.

GREBE, DUSKY AND WHITE; the *Colymbus Minor* of Brisson. This bird is about the size of the teal; and the bill is somewhat more than an inch long. The crown of the head, and the whole upper part of the body, are dusky; the inner coverts, the ridge of the wing, and the middle quill-feathers, are white, all the rest of the wing being dusky; and the belly and thighs are white, except a few black spots on the latter. A bare skin of a fine red colour unites the bill to the eye; and, in some birds, the whole neck is ash-coloured. This species inhabits the Lincolnshire fens.

GREBE, LITTLE. The length of this bird is ten inches, the breadth sixteen inches, and the weight about six or seven ounces. The head is thick-set with feathers, which, on the cheeks of old birds, are of a bright bay colour; the top of the head, the neck, breast, and whole upper-side of the body, are a deep brown tinged with red; the greater quill-feathers are dusky; the belly is ash-coloured mixed with a silvery white; and the legs are a dirty green.

These birds dive with great celerity, and remain a long time under water: they feed on fish and aquatic plants; and frequent rivers, forming their nests in the water near the banks. The female lays five or six white eggs, which she always covers when she quits the nest. The manner in which they are hatched is really astonishing: the water constantly rises through the nest, and keeps them perpetually wet; but the natural warmth of the bird bringing on a fermentation in the vegetables, which are at least a foot thick, makes a bed sufficiently hot for the purpose.

GREEN-FINCH; the *Loxia Chloris* of Linnæus. This bird is somewhat larger than the common sparrow. The upper chap of the bill is of a dusky colour, and the lower is whitish; the head and back are of a yellowish green hue; the rump is a fine yellow; but the breast is paler, and shaded with green; and the belly is white. The edges of the exterior quill-feathers are yellow, the next being green, and the farthest grey; the tail is about two inches long, and slightly forked; the two middle feathers are dusky; and the exterior webs of the four outermost feathers on both sides of the tail are yellow. The colours of the female are much less vivid than those of the male.

The Green-Finch is one of the most common birds in this country. It produces its young about the middle of May; builds its nest in the

hedges, of hay, stubble, grass, and moss, lined with feathers, wool, and hair; and lays five or six eggs of a pale green colour, sprinkled with small reddish spots, which are most numerous at the larger ends. The length of this bird, from the end of the bill to the extremity of the tail, is about six inches and a half; the bill is half an inch long; and the whole weight is sixteen drams.

Though Green-Finches are frequently kept in cages, they are not much esteemed for their singing; yet some of them, if brought up from the nest, will learn to imitate the songs of most other birds. They are tamed with amazing facility; and, in a few minutes after they are taken, will eat from a person's hand. At the beginning of winter, and in severe seasons, they assemble in flocks, and may be caught with the clap-net in great numbers. The young may be taken from the nest when about ten days old, and are easily reared.

GREEN-FINCH, RED-HEADED. This curious species, first described by Edwards, is a native of Surinam. The bill is of a light brown colour; the head is red, inclining to a high-coloured orange; round the neck there is a yellow ring, which points upwards a little under the bill; the neck, back, wings, and tail, are of a fine parrot green; the greater quills are dusky towards their extremities; on the upper part of the wing there is a yellowish spot; the breast and belly, as low as the thighs, are of a pleasant light blue colour; the upper part of the thighs, the lower belly, and under the tail, are green; part of the thighs next the legs are yellow; and the legs, feet, and claws, are of a light brown hue.

GREEN-FINCH, INDIAN. This Finch, with respect to its shape, greatly resembles the Canary-bird; and, like it, is much valued for its song. The bill is thick, strong, and short; the upper mandible is of a dark brown hue, the lower being considerably lighter; and the eyes are hazel-coloured. The top of the head, the upper side of the neck, the back, the wings, and the tail, are of a dirty green colour; the exterior webs of six or seven of the primaries are edged with white; the tail-feathers are bordered with a light yellow green; from the base of the bill, on each side, passes a bar of a dull green colour through the eyes; and from the angles of the mouth, on each side, springs a black line half an inch in length. The whole under-side, from the bill to the covert-feathers beneath the tail, is yellow, a little shaded with green on the sides of the breast and belly; and, on the sides of the neck, the yellow and green lose themselves in each other. The legs, feet, and claws, are of a brownish ash-colour. This bird, which is a native of the East Indies, was first figured and described by Edwards.

GRENADIER. The Grenadier, which is an African bird, and a native of Angola, has a thick, short, dusky bill, terminating in a point; the forepart of the head is black; and the same colour surrounds the eyes, and reaches as far as the ears on the sides of the head. The hinder part of the head, and the whole neck, are a bright orange, as well as the lower part of the back and rump. The middle of the back, and the upper sides of the wings and tail, are a dirty brown inclining to black; each feather being fringed on the edge with a lighter brown, which towards the tips becomes wholly dusky. The belly, as far as the legs, is black; but the thighs, the lower belly, and the covert-feathers under the tail, are whitish; and

the legs, feet, and claws, are of a whitish flesh-colour. This bird has a very disagreeable note, which somewhat resembles the winding up of a clock. It is a very bold animal, and will fight with great resolution through the wires of its cage, whence it probably receives its name.

GRESLING. An appellation given by the Germans to the *gobius fluviatilis*, or common gudgeon.

GREY; the *Salmo Eriox* of Linnæus. This large fish, of the truttaceous kind, is caught in many of the British rivers. It often grows to the full size of the salmon; but differs from that species in having a broader body, and a head larger in proportion. In the jaws are four rows of teeth, and on the tongue eight single teeth; the back and sides, above the lateral line, are of a deep grey colour spotted with purple; the belly is silvery; and the tail is even. The flesh is more delicious than that of the salmon, and always fetches a better price. The Grey ascends the fresh water rivers in the month of August, but is never found in great plenty.

Pennant seems to consider this fish as synonymous with the sewin, or shewin, of South Wales, which is very common in the vicinity of Caermarthen. The Grey continues in the Esk from July to September, and is then in spawn. When it becomes out of season, the lower jaw is hooked. The natives of the north of England, and of South Wales, consider this fish as a distinct species from the salmon.

GREY-FINCH. See **FINCH**.

GREY-FLY. An appellation frequently given to the gad-fly.

GREY LAG GOOSE. See **GOOSE**.

GREY GRUNT. This fish has a broad crooked back, and is about six inches long and four broad. The mouth is furnished with very small teeth; the eyes are large; and the irides are white. The dorsal fin runs the whole length of the back, and is spiny in the middle, and soft at the extremity. All the fins, as well as the tail, are of a shining gold-colour; and the body is covered with silvery scales, mixed with a golden tinge. On each side are seven large longitudinal stripes of a shining brown; but, in some, of a gold-colour. This fish is caught near the island of Jamaica, and in several other parts of the West Indies.

GREYHOUND. See **DOG** and **HOUND**.

GRIG. A name frequently used to express the sand-eel, or ammodytes. These fishes, which are ordinarily found in the River Thames, are distinguished from the common sort by having larger heads, blunter noses, thicker skins, and less fat: each fish seldom exceeds three or four pounds in weight; and they are not very highly esteemed.

GRINETTA. An aquatic fowl of the gallinula or moor-hen kind, having open feet without any annexed membranes. This bird, the *Rallus Porzana* of Linnæus, is smaller than the moor-hen and the water-rail; the legs are of a dusky green colour; the toes are very long; the beak is compressed sideways, short, pointed, and covered at the origin with a deep yellow substance; the head is brown spotted with black; the neck is a deep olive marked with white; a broad grey bar extends from the bill beyond the eyes; the back-feathers are black next their shafts, then olive-coloured, and edged with white; and the scapulars are olive, finely marked with two small white spots on each web.

This bird, which is common in Italy and Germany, but migratory in England, frequents the margins of small streams, concealing itself among bushes.

GRISLAGINE. A fresh-water fish of the cyprinus kind, common in the rivers of Germany, having whitish fins, and eleven rays in the anal fin. Its shape somewhat resembles that of the common roach; its back is of a dusky blue colour; and its belly and sides below the lateral lines are of a silvery whiteness. Its side-lines are yellow and dotted; over which there is an interrupted blackish line, running into several oblong streaks from the gills to the tail.

GRISOLA. A bird of the lark kind, described by Aldrovandus, and supposed by Ray to be the same with the spipoletta, or tordino, of the Venetians.

GRONDEUR. The French appellation for an American fish furnished with very remarkable teeth, which, on examination, have been found perfectly to resemble the bufonitæ, or serpents-eyes; and which, in their fossil state, have for many ages been accounted gems. The arrangement of these teeth is such, that the whole flat surfaces of the upper and lower jaws are in a manner paved with them. They are of different shapes and sizes in distinct parts: those placed towards the edges are of the small and flat kind commonly found in Malta, and called serpents-eyes; towards the middle, the larger toad-stones, as they are called, are situated; the largest of all being arranged in two straight rows or lines along the centre of each jaw. Each of these teeth is articulated by a gomphosis in the jaw; and, when taken out, they have all that natural cavity which is observed in the hinder part of the fossil ones. The sockets of these teeth exhibit the appearance of those from whence the teeth have frequently been shed; and it is probable that the fish renews them frequently during the course of its life.

GROSS-BEAK; the *Loxia Coccythraustes* of Linnæus. This bird, which is also called the Haw-finch, is about seven inches in length, and thirteen in breadth; and weighs about two ounces. The bill, which is shaped like a funnel, is strong, thick, and of a dull pale pink colour, having some orange-coloured feathers at its base; the irides are grey; the cheeks, and the crown of the head, are a fine deep bay; a black line extends from the bill to the eyes; and the breast and belly are of a dirty flesh-colour. The neck is cinereous; the back, and the coverts of the wings, are a deep brown; the coverts of the tail are a yellowish bay; the great quill-feathers are black, spotted with white on their inner webs; the tail is short; and the legs are flesh-coloured.

The greatest peculiarity of this bird consists in the shape of the ends of the middle quill-feathers, which, as Edwards justly observes, resemble the figure of some of the ancient battle-axes: those feathers, which are glossed over with a rich blue, are less conspicuous in the female; and indeed her colours are in general less vivid than those of the male.

The Gross-Beak is not regularly migratory. It visits this island only in severe winters. It feeds on berries; and even on the kernels of the hardest stones, such as those of cherries and almonds, which it cracks with the utmost ease; its bill, from its great strength and thickness, being well adapted for this purpose. Willughby informs us, that

that this bird is common in Italy and Germany, where it lives in the woods during the summer season; and breeds in hollow trees, laying five or six eggs; but that it frequents the plains in the winter.

GROSS-BEAK, PINE. This species frequents Hudson's Bay, Sweden, and Scotland. It feeds on the pine-tree; and, according to Linnæus, sings in the night-time. It is nearly twice as large as the bull-finch: the bill is strong, dusky, and forked at the end; the head, back, neck, and breast, are of a rich crimson colour; the bottoms of the feathers are ash-coloured; the middle of those on the head and back are black; the lower belly and the vent are ash-coloured; the lesser coverts of the wings are dusky, edged with orange; the next are fringed with a broad stripe of white; the quill-feathers and the tail are dusky, their exterior edges being a dirty white; and the legs are black. There seems to be a general agreement, with respect to colours and food, between this bird and the cross-bill. Edwards calls it the greater bull-finch, to which he was probably led by the similarity of their colouring.

GROSS-BEAK, GAMBIA. This bird is about the size of the hawk-finch: the bill is large, and broad at the base, terminating in a sharp point, and resembling the figure of a cone; the mouth is large, and ash-coloured internally; the pupils of the eyes are black, surrounded with a white iris; the head, and the greatest part of the neck, are black, ending in a circular black point on the forepart of the breast; the rest of the body, the wings, and the tail, are a beautiful yellow shaded with a bright green; and the legs and feet are cinereous, with a blueish gloss.

These birds abound on the coast of Guinea, in Africa, near the River Gambia.

GROSS-BEAK, PURPLE. This species, which is about the size of the sparrow, is adorned with red streaks over the eyes, on the throat, and near the vent under the tail; all the rest of the body being of a deep purple colour. The female has the same red streaks as the male, but her body is brown. This bird is a native of the Bahama Islands.

GROSS-BEAK, BLUE. This variety is about the size of the common Gross-Beak, or hawk-finch: the bill is strong, thick at the base, sharp-pointed, and of a lead-colour; the eyes are a dark hazel, with black pupils; the bill is encompassed with black feathers, narrow on the forehead, and reaching on the sides as far as the eyes; the head, neck, rump, back, lesser coverts of the wings, and all the under-side, are of a fine deep blue colour; on the hind-part of the head there is a small crest; the quills in the wings, and the row of covert-feathers next above them, are black; but those next the back, and the succeeding row of coverts, have blue edges. The tail is black on the upper side, and somewhat lighter on the under; and the legs and feet are slender in proportion to the size of the bird, and entirely of a dark lead-colour. This bird is a native of Angola, in Africa.

GROSS-BEAK, MALACCA. The Malacca Gross-Beak has a strong blue bill; the head, and the under-side of the wings, are of a light ash-colour; the back, wings, rump, and tail, are of a chestnut hue; the breast, belly, and the whole under-side, are dusky or blackish; and the legs and feet are flesh-coloured.

GROSS-BEAK, GREY. This bird, which is a

native of Jamaica, is somewhat less than the sparrow: the bill is thick and short; the head, neck, breast, and upper part of the belly, are of a light grey colour; the vent, and the lower part of the belly and thighs, are a fine light yellow; the wings and tail are dusky; and the legs are a light brown.

GROSS-BEAK, LINULATED. This curious bird has a blueish bill; the crown of the head, the hind-part of the neck, the back, and lesser coverts, are of a pale brown colour marked with semicircular lines of black; and the cheeks are a plain brown, bounded beneath with a rich crimson line joined to another of black. The primaries and the tail are brown; the breast and belly are a pale brown slightly marked with semicircular lines; and the legs are flesh-coloured.

GROSS-BEAK, BROWN. The bill of this species is dusky; the head, neck, back, and wings, are brown, obscurely marked with narrow dusky lines; the belly is white; the tail is dusky, or deep brown; and the legs are blueish.

GROUNDLING. The English appellation for a small species of the cobitis, more commonly called the loach; and by Artedi denominated the smooth spotted cobitis with a cylindric body.

GROUS. A general name comprehending several species of birds classed by Linnæus under the genus of tetrao. Their distinguishing characters are, that they have short arched bills; that their exterior and interior toes are connected to the first joint of the middle toe by a small membrane; that their legs are feathered down to their feet; and that they have broad scarlet eye-brows.

GROUS, WOOD; the Tetrao Urogallus of Linnæus. The male of this species is two feet eight inches long, and three feet ten inches broad; and sometimes weighs fourteen pounds. The bill is of a pale yellow colour; the nostrils are covered with dusky feathers; the head, neck, and back, are elegantly marked with slender lines of grey and black running transversely; the feathers on the hind-part of the head are long; and beneath the throat there is a large tuft of long feathers. The upper part of the breast is of a rich glossy green hue; the rest of the breast and the belly are black, mixed with some white feathers; the sides are marked like the neck; the coverts of the wings are crossed with undulated lines of black and reddish brown; the exterior webs of the greater quill-feathers are black; and at the insertion of the wings appears a white spot. The tail consists of eighteen black feathers, marked on each side with a few white spots; the legs are covered with brown feathers; and the edges of the toes are pectinated.

The female has a dusky bill and a red throat; the head, neck, and back, are marked with transverse bars of red and black; the breast is adorned with some white spots, the lower part being of a plain orange-colour; the belly is barred with pale orange and black; the tips of the feathers are white; the plumage of the back, and the scapulars, are black, the edges being mottled with black and plain reddish brown; the scapulars are tipped with white; and the tail is of a deep rust-colour, barred with black tipped with white, and consisting of sixteen feathers. The female is considerably smaller than the male.

This diversity between the male and female has induced some authors to consider them as two different species; and Gesner calls the male the grygallus major, and the female grygallus minor.

The Grouse is discovered in no other part of Britain

Britain but the Highlands of Scotland, where it is known by the name of the capercalze; and, in the old law-books, it is called caperkally, or the horse of the woods. It frequents woody and mountainous countries, feeding on the tops of pine and birch-trees, and the berries of the juniper. In the spring, it invites the female to it's haunts with a loud and shrill voice; and at that season is so very inattentive to it's own preservation, as to be easily shot. It stands perched on a tree, and descends to the female on her first appearance. The hen lays from eight to sixteen eggs; eight at the first, and more as she advances in age.

The flesh of these birds, which are common in Scandinavia, Germany, France, and several parts of the Alps, is generally reckoned well-tasted.

GROUS, BLACK, the Black-game, Heath-cock, or Black-cock; the Tetrao Tetrix of Linnæus. The male has a dusky bill; the plumage of the whole body is of a black colour, glossed over the neck and rump with a shining blue; the coverts of the wings are a dusky brown, the inner coverts being white; the thighs and legs are covered with dark brown feathers, the former having some white spots; the tail, which consists of sixteen black feathers, is much forked; and the feathers under the tail are pure white.

The weight of the black-cock is about four pounds; his length one foot ten inches; and the expansion of his wings two feet nine inches. The female weighs about two pounds; the head and neck are marked with alternate bars of dull red and black, and the breast with dusky black and white; the back, the coverts of the wings, and the tail, are of the same colour with the neck; the inner coverts of the wings are white, in both sexes forming a white spot on the shoulder; and the tail, which consists of eighteen feathers variegated with red and black, is slightly forked.

Like the former species, these birds are fond of mountainous situations. They feed on bilberries, and other mountain-fruits; and, in winter, on the tops of the heath. They never pair: but in the spring the male crows and claps his wings from some eminence; on which signal all the females within hearing resort to him.

The hen seldom lays more than six or seven eggs. The young males quit her at the beginning of winter; and keep in flocks of seven or eight till the spring, during which time they inhabit the woods.

There is another variety of the Black Grouse, which differs from the common sort in being spotted on the neck, breast, wings, and thighs, with red. It seems to be the Tetrao Hybridus of Linnæus; and is called by Brisson le coq de bruyere piquete, or spotted black-cock.

GROUS, RED; the Red-game, Gor-cock, or Moor-cock. The male of this species weighs about nineteen ounces; the length is fifteen inches and a half; and the breadth is twenty-six. The bill is black; the irides are hazel-coloured; the throat is red; the plumage on the head and neck is a light tawny red, each feather being marked with several transverse bars of black; the back and scapulars are a deeper red, and on the middle of each feather is a large black spot; the breast and belly are of a dull purplish brown colour, crossed with numerous narrow dusky lines; the quill-feathers are dusky; the tail consists of sixteen feathers entirely black, except the four middlemost, which are barred with red; the thighs

are a pale red, obscurely barred with black; the legs and feet are clothed down to the claws with thick, soft, white feathers; and the claws are whitish, very strong, and broad.

The female is considerably less than the male, weighing only fifteen ounces. Her colours in general are less vivid; her breast and belly are spotted with white; and the tips of some of the covert-feathers are of the same colour.

This species seems peculiar to Britain, as it is only mentioned by natives of this country, or at least is described by others as a bird belonging to this island.

These birds pair in the spring, and lay from six to ten eggs. The young brood follows the hen during the whole summer; and in winter they unite in flocks of forty or fifty, and become remarkably shy and wild. They are never seen in the vallies, but always keep on the summits of hills, where they feed on mountain-berries and the tops of heath.

GROUS, WHITE, the White-game; the Tetrao Lagopus of Linnæus. See PTARMIGAN.

GROUS, LONG-TAILED. This bird, which is about the size of the pheasant, is common to Hudson's Bay and other northern parts of America. The bill is dusky; the head and neck are of a bright reddish brown colour, variegated with transverse waved dusky lines; above and beneath each eye, and on the under-side of the head, the feathers are light brown; the plumage of the back, wings, and tail, is black in the middle, indented with bright brown on the sides, and transversely marked with black and brown at the tips; the covert-feathers within-side the wings are dusky and white mixed in transverse lines; the outward coverts of the wings, and the quill-feathers next the back, have white tips; and the primaries have spots of white along their outer webs. The two middle feathers of the tail are considerably the longest, the rest gradually shortening on each side; the breast, from being brown on it's upper part, by degrees becomes white; as do the belly, the sides under the wings, and the covert-feathers under the tail. The legs are covered with fine filiform feathers of a whitish brown colour transversely variegated with dusky lines; the toes and claws are dusky; and each toe is pectinated on both sides.

GROUS, LITTLE, PIN-TAILED. This species is about the size of the partridge, though it's shape is more like that of the dove: the wings, when closed, measure eight inches; the bill is of a brown, or horn-colour, darkish at the point, and shaped much like that of the common hen; the head is ash-coloured, but round the eyes it is tinged with orange; above the legs there is a black line; and the throat, from the bill downwards about an inch, is also black. The lower part of the neck before has a semilunar, orange-coloured mark, bordered above and beneath with narrow black lines; the remainder of the breast and belly, the thighs, the fore-part of the legs, and under the tail, are covered with white feathers; the coverts beneath the tail are mixed with a little black and reddish brown; and the hinder part of the neck and back is covered with brownish feathers, having their tips more yellow and light, and the middle parts shaded by dusky transverse lines. The rump, and the upper part of the tail, are more regularly marked with transverse lines of orange and black; the side-feathers of the tail are tipped with

with white, and become gradually shorter from the centre; but the two middlemost feathers are much longer than any of the rest; very narrow, and of a dusky colour. The covert-feathers of the wings are beautifully variegated with arch lines of an orange and coffee colour, their tips being white; the quills next the back are of the same colour with the back itself, and the rest are a dark ash-colour, becoming gradually black towards their tips; the fore-parts of the legs are covered with white feathers, like hair; and the feet are bare, and ash-coloured.

This species, which is found in the vicinity of Aleppo, was first described by Dr. Ruffel.

GRUB. The English name of the hexapode worms or maggots hatched from the eggs of beetles. They are excellent bait for several species of fishes. See *SCARABÆUS*.

GRUB, BOX, OR BOX PUCERON. A kind of insect approaching to the nature of the puceron of the elder and other trees; but differing from that animal in some essential characters, which refer it more properly to the same genus with the fig-insect, or false puceron.

These insects frequently change their skins and colours, after the manner of pucerons. At first they are reddish, and extremely small; after this, they divest themselves of their skins, and become yellowish; then of a deeper yellow, spotted with black; and, finally, when at their full growth, they are greenish, with black antennæ. The exuviae which these creatures leave behind them have often a small portion of their excrements affixed to them.

Reaumur, who was indefatigable in his exertions to know the history of these minute insects, found that they finally became flies of a peculiar kind, resembling those of the fig-insect: they hopped after the manner of grasshoppers, but with very short bounds; and the genitals of both sexes were easily perceived in the different individuals; though he was never able to discover any eggs, or embryo worms, in the female.

GRUINA. An appellation given by some authors to the tipula, or father-long-legs; so called from the similarity of its legs to those of the crane.

GRUNDEL, OR GRUNDLING. A provincial appellation for the common loach; a small fresh-water fish known among authors by the names of cobitis and fundulus.

GRUNDLING. A German name for the gobio fluviatilis, or common gudgeon.

GRUNDULUS. A classical term for the grundling, or loach, a species of the cobitis; and distinguished by Artedi under the name of the smooth-spotted cobitis with a cylindric body.

GRUNNIENS PISCIS, OR GRUNTING FISH. This fish, which is caught in many parts of the oriental seas, is by the Dutch called Knorre Pot. It seems to be of the gurnard kind, and nearly related to the guabi-coara of the Brazilians. When first taken out of the water, it makes a remarkable grunting noise, from which circumstance it derives its name. It has two lateral lines on each side running from the gills to the tail, one of them being brown and the other yellow; it is covered with very small scales; and is a very fat and fleshy fish of an excellent flavour. It seldom exceeds seven inches in length; but its head is large and disproportionable.

GRUS. The classical name for the crane. See *CRANE*.

GRUS BALEARICA. See *CRANE, BALEARIC*.

GRYGALLUS. The common classical appellation for the grouse. See *GROUSE*.

GRYLLOTALPA. A name given by authors in general to the mole-cricket. See *CRICKET, MOLE*.

GRYLLUS. An appellation given by some writers to the conger, or sea-eel. Rittershufius, who has published commentaries on Oppian's *Halicutics*, has called the gongros of that author by this word, but certainly very improperly. Artedi, in order to obviate all occasion of error in future, has not allowed this fish any generic name; but makes it a species of his genus of *muræna*, and distinguishes it from all the others by the name of the *muræna* with the rim of the back-fin black.

GRYLLUS VULGARIS. A name given by Gefner and Bellonius to the ophidion of the generality of authors; and distinguished by Artedi under that of the ophidion with four cirri or beards at the lower jaw. Pliny calls this fish the *pisciculus congro similis*.

GUACAGUACA. The Brazilian appellation for a bird of the *larus* or gull kind; the eggs of which are much valued, though the flesh is reckoned improper for food. The Portuguese call this bird the *gaviota*.

GUACARI. An American fish of a roundish, or, in some varieties, of a pyramidal figure. Its head is flat below, and roundish on the upper part; its mouth, which is small and round, is placed in the under-part of the head, and furnished with a sort of beard resembling short segments of hogs bristles; the back fin is somewhat prickly, as in the perch; the tail is supported by strong nerves, and very forked; the head is covered with a hard shelly crust, and the body with rough triangular scales having a tubercle in the middle; so that the whole fish seems invested with a coat of armour, and has a quadruple arrangement of tubercles on each side. The body is entirely of a saffron colour, somewhat deeper on the belly than on any other part; and is variegated throughout with brown spots, each of the size of a mustard-seed.

Another variety of this fish is wholly brown, spotted with small specks of a fine deep black. Both are esteemed proper for food, and are tolerably well flavoured.

GUACUCUA. A Brazilian appellation for a kind of water-bat.

GUACUIA. A very singular fish caught on the shores of the Brazils; called by some authors the *vespertilio aquaticus*; and, by others, the *monoceros piscis*. The anterior part of the body of this fish is shaped like a plough; the head is about six inches long, and four wide in the broadest part; the hinder part of the body is round and pointed towards the tail; the general figure is broad and flat; and from between the eyes springs a single horn, near two fingers in length, hard and conical. The mouth is pretty wide, but destitute of teeth; the skin is tough, but without scales; and the ventral fins seem to answer the purposes of feet. This animal is brown on the back, red on the belly, and full of tubercles; approaching the most nearly of any other fish to the *rana piscatrix*.

GUAIA APARA. The name of a South American crab very beautifully variegated; one end of the body being terminated by a circle, and the other by a right line. It is about three inches

broad, and two and a half long. The fore-part of the shell is of a dark brown colour variegated with whitish spots; and the hinder part is a whitish yellow, adorned with brown longitudinal streaks. It has eight roundish feet or claws, besides the two great claws or nippers, each of which is two inches and a half long and half an inch broad: the upper parts of these claws are armed and dentated like the comb of a cock; and the nippers somewhat resemble the bill of a bird; which, with the whole claw, represents the fore-part of the head of a cock. This crab, in swimming, blows the water up like the bubbling of a spring.

GUAIBA-COARA. An American fish, called by the Portuguese *Burace de Velha*. The body is flat, but the back is prominent; it's greatest length is eight inches; and it's breadth is equal to a third of it's length. These fish are caught among the rocks and near the shores of the Brazils in great abundance, and are eaten both by the natives of the country and the Portuguese settlers.

GUAIMINIBIQUE. An appellation given by many authors to the humming-bird, called also *guainumbi*.

GUALACLING. The Philippine name for a bird of the starling kind about the size of the dove. It's colour is a plain black, unless when viewed in the sun, and then it reflects a great variety of very beautiful tints. This bird feeds on fruits; and is very brisk and lively in it's disposition.

GUAMAJACU APE. A name given by Marcgrave and others to the *piscis triangularis*.

GUAMAJACU ATINGA. A fish of the orbis kind, usually about six inches in length, having a frog-shaped mouth; and, instead of teeth, furnished with a hard bone above and below. The holes for the gills are very large, near which there are two square, broad, and short fins; the head is covered with a hard bony shell; and the whole body with prickles, except on the belly, which is as soft as that of the frog: these prickles are so many small-pointed bones. This animal can at pleasure inflate it's whole body into the resemblance of a bladder; and it's flesh is esteemed poisonous.

GUAMAJACU GUARA. An appellation given by some authors to that species of the *hyfrix*, or porcupine, called by Marcgrave *diabe*.

GUANA. A species of American lizard.

GUANACO. A variety of the llama, or American camel. See **CAMEL**, **LLAMA**.

GUANHUMI. A name frequently given to the Indian land-crab, with a roundish body, slightly compressed, and of the size of an orange. It has eight legs or claws five inches long, the lower parts of which are covered with long hairs; the mouth is large, and hairy on it's sides, as well as the rest of the body; about the mouth there are two retractile feelers; and the eyes likewise may be extended or drawn back at pleasure.

GUAPERVA. An American fish of the *rana piscatrix* kind, but remarkably small, and differing from that singular creature in several essentials. It is seldom more than three inches long, and one and a half broad; it has no gills; it's mouth is large, projected like that of the dog, and furnished with extremely minute teeth; it's eyes are very small; on the middle of it's upper lip grows a small upright horn; and before it a slender filament, half a finger in length, turned backwards,

and clubbed at the extremity. It has one large dorsal fin, and two small ventral fins; and on each side of the body rises a kind of arm, which degenerates into a fin towards the extremity. This fish is entirely covered with a tough skin, rough on the back, and smooth on the belly; and the colour is a reddish brown, marked with large black points.

GUARA. A Brazilian bird, called by *Clusius* *Numenius Indicus*, or the Indian Curlew. It is about the size of the platea, or spoon-bill; the beak is long, and of a greyish colour; the tail is short, and, when closed, concealed by the wings; and the colour of the whole body is a fine vivid red, except that the long wing-feathers are tipped with black at their extremities. When first hatched from the egg, this bird is black; afterwards it becomes greyish; and, lastly, changes to a beautiful red.

GUARACAPEMA. A term used by some authors to express the fish more usually called the *dorado*, or *auratus piscis*.

GUARA-TEREBA. An American fish of the *cuculus* kind, approaching to the nature of the *trachurus Braziliensis*. It is commonly about five inches long; the head is obtuse; and the mouth is furnished with very small teeth. The lateral lines towards the tail are armed with prickly hooks, pointing backwards; and the tail is bifid.

GUARAUNA. An aquatic bird about the size of the snipe, common in the Brazils. The bill is straight, slightly hooked at the end, and about four inches long; the body is about the same length; the colour is a dusky brown, with an admixture of green; and the flesh is much admired for it's delicacy.

GUARERUA. A fish caught in the Brazilian seas. It's body, which is compressed, is about four inches long, and three broad; and it has a small mouth, and very minute teeth. On the upper part of the body, and on the belly, there is a long broad fin, both which terminate in a thorny point; the tail is cuneiform; the scales are black, with yellow edges; all the fins are also black; and about the mouth there is an iron-coloured line, having another placed perpendicularly over it. The body is surrounded with three stripes, two of which run through the broad and hinder part of the fins; and the tail is divided by a third.

GUARIBA; the *Simia Beelzebub* of *Linnaeus*. This animal, which is of the monkey kind, is common in the West Indies. It is of the size of the fox; the face is prominent; the eyes are black, and shining; the ears are small, and round; the tail is very long, naked towards the end, and extremely flexible, the creature frequently twisting it round trees, and suspending itself by it. The body is entirely covered with fine black shining hairs, except on the legs and part of the tail, where they are brown: these hairs are so nicely disposed over the animal, that it appears perfectly smooth, except that it has a kind of beard under the chin and throat.

These animals are prodigiously numerous in the woods of Brazil and Guiana, and make a very loud and hideous noise. It is very common for one of them to begin his note, and the whole assembly to remain mute around him. According to *Marcgrave*, (who informs us that he has frequently been an eye-witness of their proceedings) they meet in large troops, before and after mid day, when they form a large circle. One of them, placing himself above the rest, begins to make a loud noise:

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after he has sung in this manner by himself for some time, the rest observing the most perfect silence, he lifts up his hand, and immediately the whole company joins in chorus. This intolerable yell is kept up, without intermission, till the same monkey who gave the signal for their beginning, elevates his hand a second time, when they all become silent in an instant. He then exalts his voice again singly, and so finishes the business of the assembly.

These monkeys carry their offspring on their backs; and bound very nimbly from tree to tree, the young clinging fast to the bodies of their parents. They are very fierce, and totally intractable.

There is also another species considerably larger; which Marcgrave positively assures us, often attack the negro women as they traverse the woods, and even lie with them by force.

GUARUGUARU. A small American fresh-water fish, seldom exceeding one inch and a half in length, and having a very slender body. It is caught in lakes and ponds; and its flesh is esteemed very agreeable.

GUATUCUPA. A Brazilian fish which grows to the length of two feet. Its back is a little elevated; its mouth is small, and beset with sharp teeth; and it has only one long dorsal fin, the rays of which are rigid and prickly. It is caught among rocks; and its flesh is extremely well-flavoured.

GUATUCUSA. An American fish, approaching to the nature of the coracinus of the Mediterranean; by some called corvina. It is of an oblong shape; its back is a little prominent; its belly is perfectly flat and even; and its usual length is from twelve to twenty inches.

GUDGEON; the Gobio, and Gobio Fluvialis, of authors. In the Linnæan system, the Gudgeon is a species of the cyprinus; and, according to the Artedean system, the gobius is made the name of another genus of fishes. This fish, which is generally found in gentle streams, is about five or six inches long; the body is round; the scales are small; the back is brown, or olive-coloured; and the belly is whitish. The irides are tinged with red, the gill-covers with green and silver; and at each corner of the mouth there is a single barb. The tail is forked; and both that and the dorsal fin are spotted with black.

These fish grow to a much larger size in some rivers than in others; and a few, we are informed, have been caught in the Cole, near Uxbridge, each of which weighed a whole pound. Their flesh is highly esteemed, and deemed little inferior to that of smelts.

The Gudgeon bites very eagerly from the end of March till Michaelmas, and may be caught with a variety of baits: it may be drawn to any particular spot, by raking the bed of the river; a practice frequently adopted, and always found successful.

There is another variety of the fresh-water Gudgeon found in Germany, and there called a wapper. It is of a more tapering shape than the former, grows very small towards the tail, and its colours are whiter and less spotted.

GUDGEON, SEA. See GOBY, and GOGET.

GUEBUCU. An appellation given by some authors to the fish more usually called the bicuda, a kind of sword-fish.

GUFFER. A name given by Sibbald, and some other writers, to the eel-pout.

G U I

GUILLEM. A provincial appellation for the bird called by the generality of authors lomina, and in some places the kiddaw and sea-hen.

GUILLEMOT; the Colymbus Troile of Linnæus. This bird is about seventeen inches long, and upwards of twenty-seven broad. The bill is three inches long, black, straight, and sharp-pointed; and near the end of the lower mandible there is a small process: the feathers on the upper part of the bill are short, and soft as velvet; and from the eye to the hind-part of the head there is a small division of the plumage. The head, neck, back, wings, and tail, are of a deep mouse-colour; the tips of the lesser quill-feathers are white; the entire under-side of the body is pure white; the sides under the wings are marked with dusky lines; and the legs are dusky.

These birds are found in amazing numbers on the cliffs which encircle several parts of our coasts. The Guillemot is a very simple bird; and, though its companions be shot one by one, it will not quit its station. Like the auk, which it strongly resembles, it lays only one egg, sometimes of a pale blue colour, and at others white, spotted, or elegantly streaked with intersecting lines. It continues near the Orkneys during the whole winter.

GUILLEMOT, BLACK; the Colymbus Grylle of Linnæus. This species measures fourteen inches in length, the expansion of its wings being twenty-two. The bill is an inch and a half long, straight, slender, and black; on each wing there is a large bed of white; the tips of the lesser quill-feathers, and the inner coverts of the wings, are white; but, excepting these, the whole plumage is black. The tail consists of twelve feathers; and the legs and feet are red. In winter, this bird is said to change to white; and a variety, spotted with black and white, is frequently seen in some parts of Scotland.

The Black Guillemot frequents the Bass Island, in Scotland; the Isle of St. Kilda; the Faro Islands; and, according to Pennant, the rocks of Llandidno, in Caernarvonshire. It continues always at sea, except during the season of incubation; and is very difficult to be shot, diving to the bottom at the least alarm. The Welsh call this bird Cagan Longwr, or the Sailor's Hatred, from a superstitious notion that its appearance prognosticates a storm. It visits St. Kilda in March; builds a subterraneous nest; and lays a single grey egg, sometimes spotted with rust and speckled with ash-colour.

GUILLEMOT, LESSER. This species is seen on the Welsh coasts in the winter season, though not very frequently: its breeding-place is unknown, as it has never been observed on the rocks among congenerous birds. Its weight is nineteen ounces; its length is sixteen inches, and the expansion of its wings twenty-six. The top of the head, the whole upper part of the body, the wings, and the tail, are of a very dark mouse-colour; the cheeks, throat, and lower side of the body, are white; from the angle of the eye rises a dusky stroke, pointing to the hind-part of the head; the tips of the secondary feathers are white; the tail, which consists of twelve feathers, is very short; and the legs are black.

GUINEA-HEN; the Meleagris of some authors, and the Numida of Linnæus. This remarkable bird in some measure unites the characteristics of the pheasant and the turkey, having the fine delicate

delicate shape of the one, and the bare head of the other. It is about the size of the common hen, but its legs and neck are much longer; the body is sloped like that of the partridge; the colour is a dark grey, beautifully spotted with small specks of white; a black ring encircles the neck; the head, which is reddish, has on its top a hard horny protuberance of a brownish colour; the space under the eyes is blue; and a red fleshy appendage proceeds from the upper chap, somewhat resembling the wattles of a cock.

This bird is well known all over Europe, particularly among the nations which border on the Mediterranean and the coast of Africa. In different countries it has obtained different names: some call it the Barbary hen; and others, the Tamis bird, and the bird of Numidia. It was probably first imported from Guinea to Britain; and therefore receives its name from the place of its nativity.

These birds, which are naturally gregarious, breed up their young in common, the females tending the brood of others with as much assiduity as their own. They thrive very well in this climate; but it is almost impossible to render them so tame and domestic as the generality of English fowls. The females also are less careful with respect to the business of hatching and rearing their brood than any other birds of the gallinaceous kind; for which reason it has been found expedient to place the eggs of the Guinea-fowl under the common hen, whose maternal attention is invariably exerted to protect whatever is committed to her care. The young Guinea-fowls are very beautiful, appearing like so many partridges; their beaks and legs are red; and their whole plumage is of the colour of that of partridges. Though the eggs of the Guinea-Hen be occasionally removed from the nest, yet if care be taken always to leave one, she will continue to lay till she has deposited a hundred, or a hundred and fifty; which, as well as the flesh, are reckoned salubrious and agreeable food.

This bird is very sprightly, active, and of a restless and turbulent disposition. It runs very swiftly, after the manner of the quail and the partridge; but its wings are short, and ill adapted for flight: however, it does not reside among other domestic fowls, but ascends some house or tree, where it imagines itself beyond the reach of danger. Its cry is sharp and disagreeable; its quarrelsome disposition keeps it in continual warfare, unless it is allowed to rule the yard; and its agility, joined to the sharpness of its beak, generally secure it the victory over every opponent.

The Guinea-Hen, or, as it is frequently called, the Pintada, is so very common in America, that many have supposed it to be a native of the New World; but this is certainly an erroneous conjecture: the origin of these birds is in Guinea, where they are found, in flocks of several hundreds together, perching on trees, and feeding on worms and grasshoppers. They were first imported into America in 1508, with some cargoes of negro slaves. The Spaniards, neither then, nor at any succeeding period, have attempted to render them domestic; but they still continue wild in the savannahs, where they have increased so prodigiously, that they may naturally enough appear to be natives.

GUINEA-PIG; the *Mus Porcellus* of Linnaeus. This animal, which some naturalists call

the common cavy, is a native of the warmer climates; but has so long been domesticated, and so widely diffused, that it is now become general in every part of the world. Few are unacquainted with the figure of this little animal: in some places it is regarded as a particular favourite; and is often known even to supplant the lap-dog. It is smaller than the rabbit; its legs are considerably shorter, indeed they are scarcely seen except when the creature moves; its neck also is so short, that its head seems affixed to its shoulders; its ears are short, thin, and transparent; its hair is like that of a sucking-pig; and it has not even the least vestige of a tail. In other respects, it bears some resemblance to the rabbit. When it moves, its body lengthens like that animal; and, when at rest, it contracts its form in the same manner. Its nose is furnished with the rabbit-lip, except that its nostrils are much farther apart. Like all other animals which have been reduced to subjection and taken under human protection, its colour varies; in some it is white; in some red; and, in others, speckled. It stroaks its head with its fore-feet like the rabbit; and, like it, sits on its hind-legs; but it differs again from that animal in the number of its toes, having four on the fore-feet, and only three on the hind.

These animals are, of all others, the most helpless and inoffensive, scarcely possessing sufficient courage to defend themselves from the mouse, the meanest of all quadrupeds: their only animosities are exerted against each other; and in such conflicts they will often fight with great obstinacy and perseverance: but against all other aggressors their only remedy is patience, non-resistance, or flight. It is therefore somewhat wonderful how they can protect themselves in a savage state, since they have neither strength, swiftness, nor even the natural instincts of self-preservation, observable in other animals of almost every description. In a domestic state, indeed, they owe their safety solely to the unceasing protection of the human race: they must be constantly attended, guarded from the severity of the brumal cold, and secured from the attacks of other domestic animals, which are apt to insult them on every occasion. Such indeed is their stupidity, that they suffer cats to devour them without resistance; and, different from all other creatures, the female beholds her young destroyed, without once attempting to save them.

The favourite food of Guinea-Pigs is bran, parsley, or cabbage-leaves; but there are scarcely any vegetables cultivated in English gardens which they will not readily eat. The carrot-top seems a peculiar dainty; and those who are studious to preserve the health of these animals, should often vary their food; for, when subsisted on a kind either too succulent or too dry, the effects are quickly visible on their constitutions. When fed with recent vegetables, they seldom drink; but it often happens that, inspired by nature, they seek drier food when the former disagrees with them: they then gnaw cloaths, paper, or whatever dry substances they meet with; and, on these occasions, they are observed to drink, which they do by lapping. They are particularly fond of a beverage of new milk; but, in cases of necessity, are satisfied with water.

Their motion is performed like that of rabbits, though much less swiftly; and, when confined in a room, they seldom cross the floor, but generally keep close to the wall. The male commonly drives

drives the female before him, never moving a-breast together; but the one seems invariably to tread in the footsteps of the other. They shew a predilection for the darkest recesses and most intricate retreats; where, if they are furnished with a bed of hay, they continue to sleep together, and seldom venture out but when they suppose themselves free from annoyance. When they quit their retreat, they spring swiftly forwards, stop at the entrance, listen, look round, and if they perceive the slightest symptom of danger, they run back with precipitation. However, in very cold weather, they appear more active; which is probably occasioned by the uneasy sensations they feel from the severity of the air.

The Guinea-Pig is a very cleanly creature, and totally different from that which affords it a name. If the young ones happen to be soiled in the dirt, or any way discomposed, the female contracts such an aversion to them, that she never permits them to visit her more: indeed, her sole employment, as well as that of the male, seems to consist in smoothing the skin, disposing the hair, and improving it's gloss. The male and female assume this office by turns; and, when they have brushed up each other, they then turn their attention to their young, taking particular care to make their hair lie smooth, and biting them if they appear refractory.

As these creatures are so solicitous about adorning themselves, their habitations should be regularly cleaned, and beds of fresh hay provided for them weekly. Being originally sprung from a warm climate, they are naturally chilly in this: cleanliness, therefore, is favourable to warmth, and helps to expel moisture. With moderate care, they may be reared without the aid of artificial heat; but, in general, it is impossible to keep them from the fire in winter, if they have once been permitted to feel the benefit of it.

Guinea-Pigs repose flat on their bellies, pretty much in their usual posture, except that they love to have their fore-feet highest; and for this purpose they turn themselves several times round before they lie down, in order to fix on the most convenient situations. Like hares, they sleep with their eyes half open, and continue extremely wakeful if suspicious of danger. The male and female never repose at the same time; but, when he rests, she remains on the watch, silently continuing to guard him, with her head turned towards the place where he lies. When she supposes that he has had sufficient refreshment, she then awakes him by a kind of murmuring noise, forces him from his bed, and occupies his place. He then performs the same kind of offices to the female in his turn, and continues vigilant till she has finished her nap.

Extremely salacious in their natures, these animals are capable of propagating their kind at the age of six weeks. The female goes with young about five weeks, and usually brings forth from three to five at a time: but, what is very extraordinary, she admits the male the very day she has brought forth, and becomes pregnant again; so that their increase is really astonishing. She suckles her young about twelve or fifteen days; but, during that time, she seems incapable of distinguishing between her own and the progeny of another. The young are, like all others of the hare kind, produced with their eyes open; and, in less than half a day, equal their dams in agility. Though the parent is furnished with but two teats,

she abundantly supplies her offspring with milk; and they are almost capable of subsisting on vegetables from their very birth. If the young are permitted to continue long together, the stronger, as in all other societies, will soon begin to usurp dominion over the weaker. Their animosities, which are frequent and obstinate, and their jealousies very apparent, often originate from a desire of the warmest place, or the most agreeable food. If one of them happens to be more fortunate in this respect than it's companion, the strongest generally discovers the advantage, and endeavours to possess it. Their manner of fighting is ridiculous enough to a spectator: one of them seizes the hair on the nape of the other's neck with it's fore-teeth, and attempts to tear it away; the other, by way of retaliation, turns it's posteriors to it's enemy, kicks up behind like a horse, and with it's hinder claws scratches the sides of it's antagonist; so that they are sometimes mutually covered with blood.

But, though sufficiently formidable to each other, with regard to the rest of animated nature, these creatures, as already observed, are the most timorous on earth; a falling leaf disturbs them, and the most ignoble and feeble adversary overcomes them: hence they are tamed with difficulty; and will suffer none to approach them except the person by whom they are fed. They grunt somewhat like young pigs; and their notes expressive of pain, are very piercing.

Some people eat the flesh of these animals; but it by no means sufficiently compensates for the trouble of rearing them.

GUINIAD, OR GWINIAD; the *Salmo Lavaretus* of Linnæus. A fish of the truttaceous kind, generally known among authors by the name of ferra, and commonly caught in the lakes of Wales, England, and Scotland. It is also found in Switzerland, Italy, Norway, Sweden, Lapland, and Ireland.

The Scotch have a tradition, that this fish was first introduced into their country by the beautiful but unfortunate Queen Mary. Sibbald calls it Vandesus, from the French Vendoise, a Dace; to which an incurious observer might be tempted to compare it from the whiteness of it's scales. It's British name Gwiniad, or Whiting, was given it on account of the whiteness of it's body.

The Guiniad has sometimes been found to weigh three or four pounds; it's length is from eleven to fifteen inches; and it's greatest depth from three to four. The head is small, smooth, and dusky; the eyes are large; the pupil is of a deep blue colour; the nose is obtuse; the jaws are of equal lengths; and the mouth is small, and destitute of teeth. The covers of the gills are silvery, sprinkled with black; and the branchiostegous rays are nine in number. The back is slightly arched and carinated; the colour, as far as the lateral lines, is glossed with deep blue and purple, but near these assumes a silvery cast tinged with gold; and, beneath them, those colours entirely prevail. The lateral line is straight, and composed of a series of distinct spots of a dusky hue; the belly is a little prominent; the first dorsal fin, which is placed almost in the middle, consists of fourteen branched rays; and the second, which is thin and transparent, is situated near the tail. The pectoral fins contain eighteen rays; the ventral twelve; and the anal fifteen, all branched at their extremities. The ventral fins, in some, are

of a fine azure blue colour; in others, sprinkled with blue: the tail is extremely bifid; and the scales, which are large, adhere close to the body.

The flesh of the Guiniad has an insipid taste. It dies almost immediately after being taken out of the water; and, if not salted, soon becomes putrid.

These fish, which are gregarious, approach the shores in vast shoals in spring and summer, proving a great relief to the necessities of the poor. In the Welsh lakes, the Guiniad spawns about the month of December. Camden observes, that this fish never enters the Dee, nor the salmon ever ventures into the lake; but though this is generally the case, the first has been known to stray some miles down the river, and the salmon has been caught trespassing in the lake.

GUIRA-ACANGATARA. A Brazilian bird described by Marcgrave, of the wood-pecker kind, about the size of the great spotted wood-pecker of Europe. It is common in the woods of different parts of America, and makes a loud and disagreeable noise.

GUIRA-CENOIA. A small Brazilian bird of the parus or titmouse kind. Its head, throat, breast, belly, and the lower part of its beak, are of a fine blue colour; its neck, and the upper half of its back, are black; its wings are variegated with black and blue; its tail is black; and its legs are brown.

GUIRA-COEREB. A Brazilian bird, described by Marcgrave, of the size of the greenfinch. The top of the head is ornamented with a large spot of sea-green feathers; the rest of the head, the throat, the breast, the belly, and the lower half of the back, are of a fine shining blue colour, variegated with white; a fine blue line crosses the wings; the upper half of the back is a very deep black, glossy and shining; and the tail is black.

GUIRA-GUAINUMBI. The name of a bird of the king-fisher or merops kind; which, from the quantity of its feathers, appears of the size of the pigeon, though in reality it is no larger than the thrush. The bill, which is longish and black, is a little crooked, and serrated at the edges; the legs are very short; the tail is long and narrow; and the colours of the whole body are various and beautiful.

GUIRA-NHEEMGATU. A Brazilian appellation for a bird of the sparrow kind, common in that country.

GUIRA-PANGA. A bird of the thrush kind, common in the Brazils, remarkable for the loudness and shrillness of its voice. It is the largest of all the thrush kind hitherto described, being about the size of a small pigeon.

GUIRA-PERA. A Brazilian bird described by Marcgrave. It is equal to the lark in size; its beak is short, thick, and black; its head, neck, back, and belly, are of a pale yellow colour; the lower part of the head, the throat, and the breast, are black; and the wings and tail are black and brown, slightly varied with sea-green.

GUIRA-GUACUBERABA. This bird, which is about the size of the goldfinch, is a native of the Brazils. The breast and the extremity of the back are of a fine orange-colour, mixed with yellow; the crown of the head, the outside of the neck, and the anterior half of the back, are a pale green; of which colour also are the wings and tail, except that there are some brown feathers in the

former; and the belly and rump are yellow. Under the throat a large black spot extends almost to the eyes, above which is a line of bright yellow; the beak is straight, slender, and pointed; and the feet are brown.

GUIRA-QUEREA. The name of a Brazilian bird of the caprimulgus or goat-sucker kind, approaching to the figure of the cuckoo. Ray describes it as being about the size of the lark, with long wings, a long tail, short legs, and the toes connected with a membrane, but not webbed. Whether it is a nocturnal bird, or otherwise, we have not learnt; though it is probably of the nature of the caprimulgus, whose figure it nearly resembles.

GUIRA-RANHAENGETA. An appellation given by the native Brazilians to a bird of the *oenanthe* or wheat-ear kind.

GUIRA-TANGIMA. This bird, which is a native of America, is very remarkable for suspending its nest from the extremities of boughs, from whence it receives its name. It is about the size of the magpie: the head is small, and black; the beak is straight, sharp, and dusky; the lower part of the neck is of the same colour with the head; but the upper part at the beginning of the back is of a sky-colour. The tail and wings are also entirely black; but in the middle of the latter there is a large white spot; and the rest of the body is a sky blue.

The Guira-Tangima constructs a cylindrical nest, composed of twigs, in a very artful manner: it probably suspends it from the branches of trees in order to avoid the depredations of serpents, and some quadrupeds which are fond of ovarious food.

GUIRA-TINGA. A Brazilian bird of the heron kind, but considerably smaller than the common European bird of that name. It walks very erect; its neck is long; its feet and legs are greenish; and its body is entirely covered with snow-white plumage, which on the neck is more beautiful and soft than the down of the ostrich. Marcgrave informs us, that it is always seen above water.

GUIRA-TIRICA. Ray calls this bird *Rubicilla Americana*. It is a native of the Brazils, and appears to be of the bullfinch kind. It grows to the size of the lark; and is furnished with a very strong bill.

GUIRA-UIAGARA. An American species of serpent, so called from its fondness for eggs; its name, in the language of the natives, implying a devourer of eggs. It is of a long, slender figure; and is black on the back, and yellow on the belly. It ascends trees with great facility; and writhes itself among the highest branches, in quest of birds nests, with amazing dexterity.

QUITGUIT. An appellation under which Nieremberg has described a bird which, he informs us, is about the size of the wren; and, notwithstanding its smallness, is much esteemed for the table. It is entirely of a vivid green colour, and remarkably lively and active.

GULASISI. The Philippine name for a very small and beautiful species of parrot, common in that country.

GULL. In an extensive sense, the Gull is the common name of all the *larus* kind; but is generally limited to a few particular species, of which the subsequent are the most common.

GULL, COMMON; the *Larus Canus* of Linnæus. This bird, which is the most numerous of the genus, breeds on the ledges of cliffs that impend the sea; and, during the winter season, frequents almost every part of the British coasts where the high, bold shores, present a favourable situation. Like other rapacious birds, it lays but few eggs; which circumstance, added to the numbers continually destroyed for subsistence, has in many places diminished the breed. It generally measures about seventeen inches in length, and thirty-six in breadth: the bill is yellow; the head, neck, tail, and the whole under-side of the body, are pure white; the back, and the coverts of the wings, are grey; and the legs are a dull white tinged with green.

GULL, BLACK-BACKED; the *Larus Marinus* of Linnæus. This species is about twenty-nine inches long, and the expansion of the wings almost five feet nine inches. The bill, which is very strong and thick, is of a pale yellow colour; the irides are yellow; the head, the neck, the whole under-side, the tail, and the lower part of the back, are white; the upper part of the back and wings are black; the quill-feathers are tipped with white; and the legs are of a pale flesh-colour.

The Black-Backed Gull inhabits various parts of the British coasts, and breeds in the highest cliffs. It principally subsists on fish; but, for want of more agreeable food, it will devour carrion.

GULL, BROWN AND FERRUGINOUS; the *Larus Cataractes* of Linnæus. This bird inhabits Norway, the Ferro Islands, Shetland, and the South Sea. It is the most formidable of all the Gull kind, preying not only on fishes, but also on all the lesser kinds of water-fowl; and, according to some authors, on domestic poultry and lambs. It possesses all the native fierceness of the eagle in defence of its young; and, when the inhabitants of the Ferro Isles visit its nest, we are told that it attacks them with the utmost intrepidity; and will rush on a knife, or any other instrument which is held up for their defence.

In the craggy isle of Foula, a little west of Shetland, this bird is religiously preserved, because it defends the flocks of the natives from eagles, which it pursues with so much animosity, that even these very rapacious birds seldom venture near its abode; and on this account the inhabitants impose a fine on any person who destroys one of these Gulls.

This singular species, which Pennant calls the Skua Gull, is about two feet long, and four and a half broad: the bill is upwards of two inches in length, hooked at the end, and extremely sharp; the upper mandible is covered more than half its extent with a black cere; and the nostrils, which are placed near the bend, are pervious. The plumage on the head, neck, back, scapulars, and coverts of the wings, is a deep brown, marked with rust-colour; the shafts of the primaries are white; their ends are principally brown, the lower parts on both sides being white; and the secondaries are marked in like manner, forming a great bar of white. The breast, belly, and vent, are ferruginous, tinged with ash-colour; the tail, when spread, is circular, and of a deep brown colour, except the shafts of the feathers, which are white; the legs are covered with great black scales; and the talons are strong, crooked, and black.

GULL, BLACK-TOED; the *Cephus* of Aldrovandus. The Black-Toed Gull is a rare species in this country. A bird of this kind was formerly

shot near Oxford, and communicated to the Royal Society. It is about fifteen inches long, and thirty-nine broad: the bill is an inch and a half in length; the upper mandible is covered with a brown cere for a considerable way; and the extremity is brown and hooked. The head and neck are of a dirty white colour; the hind part of the latter being plain, and the rest marked with oblong dusky spots. The breast and belly are white, intersected with numerous dusky and yellowish lines; the plumage on the sides and vent is barred transversely with black and white; the back, scapulars, and coverts of the wings and tail, are black, beautifully edged with white; the shafts and tips of the quill-feathers are white; the tail is composed of twelve black feathers tipped with white, the two middlemost being nearly an inch longer than the rest; the legs are of a blueish lead-colour; and the lower part of the toes and webs are black.

GULL, ARCTIC; the *Larus Parasiticus* of Linnæus. The length of this species is about twenty-one inches; and the bill, which is about an inch and a half long, is dusky, and pretty much hooked at the end. In the male, the crown of the head is black; the back, wings, and tail, are dusky; the hind-part of the neck, and the whole under-side of the body, are white: the tail consists of twelve feathers, the two middlemost of which are considerably the longest; and the legs are small, scaly, and black. The female is entirely brown; and the centre feathers of the tail are about two inches shorter than in the male.

Linnæus, notwithstanding his usual accuracy, has separated this bird from its mate, and made it a synonym to his *larus cataractes*, a bird very different from this species.

The Arctic Gull is very common in the Hebrides; and is also seen in the Orkneys, and on the coast of Yorkshire. All naturalists who mention this fowl, agree that it instinctively pursues the lesser Gulls with such unceasing perseverance, that they emit their excrements through fear, which it catches up, and devours before they reach the water.

GULL, HERRING; the *Larus Fuscus* of Linnæus. The length of this species is twenty-three inches, and the breadth fifty-two; the bill is yellow; the irides are straw-coloured; and the edges of the eye-lids are red. The head, neck, and tail, are white; the back, and the coverts of the wings, are cinereous; and the legs are of a pale flesh-colour.

The Herring Gull forms a large nest, of withered grass, on the cliffs which overhang the sea; and in it lays three eggs of a dirty white colour spotted with black. The young, which are ash-coloured spotted with brown, do not assume their proper colours till they are one year old: a circumstance indeed common to other gulls; and which, not being properly attended to, has occasioned considerable confusion among naturalists.

This Gull is very destructive to fish, particularly to that species from which it receives its name.

GULL, GREAT, GREY, OR WAGEL; the *Larus Nævus* of Linnæus. There are several varieties of this species, differing chiefly in size; some weighing upwards of three pounds, and others not much above two. The bill is black; the irides are dusky; the whole plumage of the head and body, above and below, is a mixture of white, ash-colour, and brown; the quill-feathers are black;

black; the lower part of the tail is mottled with black and white; towards the extremity there is a dark brown bar; and the tips of the tail-feathers, and the feet, are whitish.

Some authors have considered this as the young of the Herring Gull: but it should be observed, that the original colours of the irides are permanent; and these are so very different in the two species now described, that we may safely pronounce them distinct.

GULL, WINTER; the *Larus Tridactylus* of Linnæus. This species, called also the Winter-mew, or Cuddy-moddy, during the brumal season frequents the marshy grounds in the interior parts of this island. The gelatinous substance, known by the name of star-shot, or star-gelly, originates from this bird, or some other of the kind; being only the half-digested remains of earth-worms, on which these birds feed, discharged from their stomachs.

The Winter Gull is about eighteen inches long, and thirty-nine broad; the bill, which is two inches long, is black at the tip, and whitish towards the base; the irides are hazel-coloured; the crown of the head, the hind-part, and the sides of the neck, are white marked with oblong dusky spots; the forehead, the throat, the middle of the breast, the belly, and the rump, are white; the back and scapulars are a pale grey, the latter being spotted with brown; the coverts of the wings are a pale brown, edged with white; the quill-feathers are tipped with white; the tail is white, intersected near the end with a black bar; and the legs are a dirty blueish white.

GULL, BLACK-HEADED; the *Larus Ridibundus* of Linnæus. This species may easily be distinguished from all others by its note, which resembles a hoarse-laugh. It measures fifteen inches in length, and thirty-seven in breadth: the bill is red; the irides are hazel-coloured; and, both above and below the eyes, there is a spot of white feathers. The head and throat are black, or dusky; the neck, the under-side of the body, and the tail, are a pure white; the back and wings are cinereous; and the legs are of a sanguine hue.

These Gulls breed in various parts of England, at a distance from the sea: they form their nests on the ground, of rushes or withered grass; and lay three eggs of a dirty olive-colour, marked with black. They are birds of passage; and, after the season of incubation, disperse to the sea-coasts.

Dr. Plott, in his Natural History of Staffordshire, gives a marvellous account of their attachment to the lord of the soil where they breed; gravely telling us, that they shift their quarters, for a certain time, after his demise.

The young of these birds were formerly in high estimation; and numbers were annually fattened for the table. Whitelock, in his Annals, mentions a piece of ground near Portsmouth, which produced to the owner forty pounds a year by the sale of pewits; by which name he intends this species of Gull.

GULYAVAN. A Philippine appellation for a very beautiful bird common in those islands. It is of the size of the turtle-dove, and charmingly variegated with black and gold-coloured feathers. It is said to feed on fruits; but, with regard to its other qualities, we are left wholly in the dark.

GUNNELLUS. A name sometimes applied to the butter-fish.

GURGULIO. An appellation given by the

ancients to a peculiar class of scarabæi, or beetles; the characters of which are, that they have long heads, forming trunks after the manner of common flies; and in these the horns or antennæ are lodged. Lister divides these into two kinds; the first having only one joint in the promusculis or snout, placed near the middle; the other having several joints, situated near the extremity. There are two species of the former kind, and five of the latter.

GURNARD. A marine fish, of which there are several species. The distinguishing characters are these: the nose slopes; the head is covered with strong bony plates; there are seven branchiostegous rays; and three slender appendages at the base of the pectoral fins. The Latins give this fish the name of the cuculus, from its supposed imitation of the voice of the cuckow; and the English call it the Gurnard, probably from its grunting noise.

GURNARD, GREY; the *Trigla Gurnardus* of Linnæus. This species, which is the most common of the kind, is frequently caught in the British seas; and its flesh is esteemed extremely desirable. Its figure is long and slender: the back is of a dusky green colour marked with black, yellow, and white spots; the lateral lines are dotted and rough; and, under these, the sides are of a pale hue variegated with numerous white spots. The belly is white; the nose is pretty long, and sloping; the end is bifurcated; and each side is armed with three short spines. The eyes are large, above each of which there are two short spines; the teeth, which are small, are arranged in the upper and lower jaws, in the roof of the mouth, and on the base of the tongue. Near the extremity of the gill-covers, there is a strong, sharp, long spine; and exactly above the pectoral fins there is another. The first dorsal fin consists of eight spiny rays, and the second of nineteen soft rays; the pectoral fins are transparent, and supported by ten rays, bifurcated from the middle; the ventral fins contain six rays, and the anal nineteen; the tail is bifurcated; and the lateral line is very prominent, and strongly serrated.

This fish bites very eagerly at a red rag, and is usually taken with the hook in deep water; but is sometimes found near the surface. It frequently measures two feet and a half in length.

GURNARD, RED; the *Trigla Cuculus* of Linnæus. Artedi calls this the wholly red trigla, with the snout lightly divided into two horns, and the opercula of the gills striated.

The Red Gurnard, called also the rocket, agrees with the tub-fish in its general appearance, but differs from it in several essentials. The covers of the gills are radiated; the spines are long and slender; and the nose is armed on each side with two sharp spines. The fins, and the body, are of a full red colour; the scales are large; the pectoral fins are edged with purple; the lateral line is strongly serrated; and the tail is almost even at the end.

GURNARD, SAPPHIRINE; the *Trigla Hirundo* of Linnæus. This species is frequently caught on the Cornish coasts, and some other parts of this island. It is distinguished from the other Gurnards by the breadth and colour of the pectoral fins, which are very broad and long, and of a pale green hue, most beautifully spotted and edged with a rich deep blue. The dorsal fins are lodged between two rays of spines of a serrated form; the back is of a greenish cast; the lateral line is rough; the

the sides are tinged with red; the belly is white; the pupils of the eyes are green, and on the inner corner of each there are two small spines.

GURNARD, STREAKED; the *Cuculus Lineatus* of Ray. The head of this species is large, and distinguished by stellated marks; the eyes are large; the coverings of the gills are thorny; and the mouth is small, and destitute of teeth. The pectoral fins are large and spotted, and beneath them there are three filaments; the colour of the body is red; and the belly is white, marked with a number of streaks pointing downwards from the back. This fish is caught on the Cornish coasts; and is supposed by some to be the mullus imberbis of Linnæus.

GURNARD, YELLOW. See *DRACUNCULUS*.

GURNARD, KING OF. The King of the Gurnards probably receives its name from its size. It is destitute of barbs; the scales are large; the body is wholly red; the eyes are full and prominent; and the jaws are extremely rough. This species is caught on the coasts of the Isle of Malta.

GUROUNDI. A small Brazilian bird, more commonly called the teitei; which is caged, and much esteemed for its singing.

GYMNARTHRIA. A class of insects, having soft naked bodies furnished with limbs. These have generally been called Zoophytes, a term expressing creatures partly animal, and partly vegetable: but it is now clearly proved, that there are no animals which fall under this description; consequently, the term Zoophyte should no longer be retained.

Under the class of Gymnarthridia are comprehended the limax, the lerneæ, medusa, aphrodita, amphitrite, &c.

GYMNA. A new-established class of animalcules, comprehending such as have neither tails nor any visible limbs.

GYMNOTUS. A genus of fishes of the malacopterygious kind, in the Artedean system; but, in the Linnæan, of the order of apodes. The characters are these: the branchiostegæ membrane contains five bones; the head is furnished with lateral covers; the upper lip has two tentacula; the eyes are covered with a skin; the body is flattened and carinated under the lower fin; and there is no dorsal fin. Linnæus enumerates five species of this genus.

GYMNOTUS ELECTRICUS; the Electrical Eel. This very remarkable fish has lately been the subject of much investigation. Bancroft, in his Natural History of Guiana, has given a general description of its figure and effects; but Dr. Garden, in the Philosophical Transactions, has favoured the world with so very accurate and minute an account of this singular creature, that we are induced to lay it before our readers in his own words. The doctor's letter to a member of the Royal Society, which is dated at Charles Town in South Carolina, August 14, 1774, runs thus:

'A few days since I went to see some very curious fish, which were brought here about nine or ten weeks ago from Surinam; and I was both surprised and delighted to observe their strange shape, and experience their wonderful properties. I had before received some vague account of such a fish; but I always thought, that much of what I always heard was fabulous. There are five of these fishes now here, of different sizes, from two feet in length to three feet eight inches. The following description was made out from the longest and largest.

It might have been much more accurate, if there had been a possibility of handling the fish, and examining it leisurely; or if I could have had a dead specimen, as many things relating to the internal and external structure could in that case have been more exactly ascertained. But this fish hath the amazing power of giving so sudden and so violent a shock to any person that touches it, that there is, I think, an absolute impossibility of ever examining, accurately, a living specimen; and the person who owns them, rates them at too high a price (not less than fifty guineas for the smallest) for me to get a dead specimen, unless one should die by accident: if that should happen, you may depend on having a more exact and accurate account for the Society.

'George Baker, mariner, who brought them here, intends to carry them to England; but as it is very uncertain whether they will arrive in health, and all alive, I have recommended to him to get a small cask of rum, with a large bung, into which he may put any of them that may die, and so prepare them for the inspection and examination of the curious when he arrives.

'The largest of these fish was three feet eight inches in length, when extending itself most, and might have been from ten to fourteen inches in circumference about the thickest part of the body. The head is large, broad, flat, smooth, and impressed here and there with holes, as if perforated with a blunt needle, especially towards the sides, where they are more regularly ranged in a line on each side. The rostrum is obtuse and rounded. The upper and lower jaws are of an equal length, and the gape is large. The nostrils are two on each side; the first large, tubular, and elevated above the surface; and the others small, and level with the skin, placed immediately behind the verge of the rostrum, at the distance of an inch asunder. The eyes are small, flattish, and of a blueish colour, placed about three-quarters of an inch behind the nostrils, and towards the sides of the head. The whole head seems to be well supported; but whether with bones or cartilages, I could not learn. The body is large, thick, and roundish, for a considerable distance from the head, and then gradually grows smaller, but at the same time deeper, or becomes of an acinaciform shape to the point of the tail, which is rather blunt. There are many light-coloured spots on the back and sides of the belly, placed at considerable distances in irregular lines, but more numerous and distinct towards the tail. When the fish was swimming, it measured sixteen inches in depth near the middle, from the upper part of the back to the lower edge of the fin, and it could not be more than two inches broad on the back at that place. The whole body, from about four inches below the head, seems to be clearly distinguished into four different longitudinal parts or divisions. The upper part, or back, is roundish, of a dark colour, and separated from the other parts on each side by the lateral lines, which, taking their rise at the base of the head, just above the pectoral fins, run down the sides, gradually converging as the fish grows smaller, to the tail, and makes so visible a depression or furrow in their course, as to distinguish this from the second part or division, which may be properly called the body, or at least appears to be the strong muscular part of the fish. This second division is of a lighter and more clear blueish colour than the upper or back part, and seems to

swell out somewhat on each side, from the depression of the lateral lines; but towards the lower or under-part, is again contracted, or sharpened into the third part, or carina. This carina, or keel, is very distinguishable from the other two divisions by its thinness, its apparent laxness, and by the reticulated skin of a more grey and light colour, with which it is covered. When the animal swims gently in pretty deep water, the rhomboidal reticulations of the skin of this carina are very discernible; but when the water is shallow, or the depth of the carina is contracted, these reticulations appear like many irregular longitudinal plicæ. The carina begins about six or seven inches below the base of the head, and gradually widening or deepening as it goes along, reaches down to the tail, where it is thinnest. It seems to be of a strong muscular nature. Where it first takes its rise from the body of the fish, it seems to be about one inch, or one inch and an half thick, and is gradually sharpened to a thin edge, where the fourth and last part is situated, viz. a long, deep, soft, wavy fin, which takes its rise about three or four inches at most below the head, and runs down along the sharp edge of the carina, to the extremity of the tail. Where it first rises it is not deep, but gradually deepens or widens as it approaches the tail. It is of a very pliable, soft consistence, and seems rather longer than the body. The situation of the anus in this fish is very singular, being placed underneath, and being about an inch more forward than the pectoral fins, and consequently considerably nearer the rostrum. It is a pretty long rim in appearance; but the aperture must be very small, as the formed excrements are only about the size of the quill of a common dung-hill fowl. There are two pectoral (if I may call them so) fins, placed one on each side, just behind the head, over the foramina spiratoria, which are small, and generally covered with a lax skin, situated in the axillæ of these fins. These fins are small for the size of the fish, being scarcely an inch in length, of a very thin, delicate consistence, and orbicular shape. They seem to be chiefly useful in supporting and raising the head of the fish when he wants to breathe, which he does every four or five minutes, by raising his mouth out of the water: this shews that he has lungs, and is amphibious, and foramina spiratoria seem to indicate his having bronchiæ likewise; but this I only offer as a conjecture, not being certain of the fact. I must now mention the appearance of a number of small cross bands, annular divisions, or rather rugæ of the skin of the body. They reach across the body down to the base of the carina on each side; but those that cross the back seem to terminate at the lateral lines, where new rings take their rise, not exactly in the same line, and run down the carina. This gives the fish somewhat of a worm-like appearance; and indeed it seems to have some of the properties of this tribe, for it has a power of lengthening or shortening its body to a certain degree, for its own convenience, or agreeable to its own inclination. I have seen this specimen, which I have measured three feet eight inches, shorten himself to three feet two inches; but besides this power of lengthening or shortening his body, he can swim forwards or backwards with apparently equal ease to himself; which is another property of the vermicular tribe. When he swims forwards, the undulation, or wavy motion of the fin and carina, begin from the upper part, and

move downwards; but when he swims backwards, and the tail goes foremost, and the undulations of the fin begin at the extremity of the tail or fin, and proceed in succession from that backwards to the upper part of the body; in either case he swims equally swift. Every now and then the fish lays himself on one side, as it were, to rest himself, and then the four several divisions of his body above-mentioned are very distinctly seen, viz. the vermiform appearance of the two upper divisions; the retiform appearance of the carina; and the last, or dark-coloured fin, whose rays seem to be exceedingly soft and flexible, and entirely at the command of the strong muscular carina. When he is taken out of the water, and laid on his belly, the carina and fin lie to one side, in the same manner as the ventral fin of the tetraodon does when he creeps on the ground. I have been the longer and more particular in the description of the external structure of this animal's body, because I think, as it is of a most singular nature, and endowed with some amazing properties, even the most minute circumstance I was able to observe relating to it, should be mentioned.

The person to whom these animals belong, calls them Electrical Fish; and indeed the power they have of giving an electrical shock to any person, or to any number of persons who join hands together, the extreme person on each side touching the fish, is their most singular and astonishing property. All the five we have here are possessed of this power in a very great degree, and communicate the shock to one person, or to any number of persons, either by the immediate touch of the fish with the hand, or by the mediation of any metal-line rod. The keeper says, that when they were first caught, they could give a much stronger shock by a metalline conductor than they can do at present. The person who is to receive the shock, must take the fish with both hands, at some considerable distance asunder, so as to form the communication, otherwise he will not receive it; at least I never saw any one shocked from taking hold of it with one hand only; though some have assured me, that they were shocked by laying one hand on him. I myself have taken hold of the largest with one hand only, without ever receiving a shock; but I never touched it with both hands, at a little distance asunder, without feeling a smart shock. I have often remarked, that when it is taken hold of with one hand, and the other hand is put into the water over its body, without touching it, the person received a smart shock; and I have observed the same effect follow when a number joined hands, and the person at one extremity of the circle took hold of, or touched the fish, and the person at the other extremity put his hand into the water, over the body of the fish. The shock was communicated through the whole circle as smartly as if both the extreme persons had touched the fish. In this it seems to differ widely from the torpedo, or else we are much misinformed of the manner in which the benumbing effect of that fish is communicated. The shock which our Surinam fish gives, seems to be wholly electrical; and all the phenomena or properties of it exactly resemble those of the electric aura of our atmosphere when collected, as far as they are discoverable from the several trials made on this fish. This stroke is communicated by the same conductors, and intercepted by the interposition of the same original electrics, or electrics per se, as they used

used to be called. The keeper of these fish informs me, that he caught them in Surinam river, a great way up, beyond where the salt-water reaches; and they are a fresh-water fish only. He says that they are eaten, and by some people esteemed a great delicacy. They live on fish, worms, or any animal food, if it is cut small, so that they can swallow it. When small-lived fishes are thrown into the water, they first give them a shock, which kills or stupifies them, that they may swallow them easily, and without any trouble. If one of these small fishes, after it is shocked, and to all appearance dead, be taken out of the vessel where the electrical fish is, and put into fresh water, it will soon revive again. If a larger fish than they can swallow be thrown into the water at a time that they are hungry, they give him some smart shocks, till he is apparently dead, and then try to swallow or suck him in; but after several attempts, finding he is too large, they quit him. Upon the most careful inspection of such fish, I could never see any mark of teeth, or the least wound or scratch on them. When the electrical fish are hungry, they are pretty keen after their food; but they are soon satisfied, not being able to contain much at a time. An electrical fish of three feet and upwards in length cannot swallow a small fish above two, or at most three inches and a half long. Since I wrote the above description and remarks, I have had Mr. Bancroft's Essay on the Natural History of Guiana put into my hands, in which I find an account of this animal; but as I think he has not been very particular in the description of it, I resolved still to send you the above account, that you might judge for yourself. I ob-

serve, that his account or description and mine differ in several things; and, amongst others, where he says that those fish were usually about three feet in length; but the one, of which I have sent a slight description, was three feet eight inches. This small variation might indeed have happened without any error; but I am told, that some of them have been seen in Surinam river upwards of twenty feet long, whose stroke or shock proved instant death to any person that unluckily received it.

In addition to Dr. Garden's description, we are enabled, by the curious dissections of Mr. John Hunter, to declare, that the electrical qualities of this fish depend on particular organs. There are two pair of these organs, a larger and smaller, placed on each side of the fish, separated from each other, and constituting, perhaps, more than a third part of the whole animal. In the structure of the organs, there are flat partitions, or septa; and cross divisions between them, by means of thin plates, or membranes; of which transverse plates about two hundred and forty are contained in a single inch, which multiply the entire surface to a vast extent. The nerves of this fish, appropriated to the exercise of its electrical powers, and which arise particularly from the medulla spinalis, whence they issue in pairs between all the vertebræ of the spine, and supply the organs, are considerably larger than those which are bestowed on any other part for the purposes of action and sensation. For a more minute account of the electrical properties of this fish, see TORPEDO.

GYRINUS. A name sometimes given to a species of the mordella.

H.

HADDOCK; the *Gadus Æglefinus* of Linnaeus. The generality of writers make the Haddock a species of the *afellus* kind; but, according to the new Artedean system, it is of the genus of *gadi*. Salvian calls it the *afellus major*; and Turner and Willughby, the *oros* and *afinus* of the ancients. Charlton tells us, that this fish was the *caliaris*, *galeris*, and *galaxis*, of Pliny; but this opinion does not seem to rest on substantial evidence.

The Haddock seldom attains to any very considerable size, one of fourteen pounds weight being very unusual; and indeed it is generally esteemed most proper for the table when it weighs only two or three pounds. The body is long and slender; the head slopes down to the nose; the space between the hind-part of the first dorsal fin is ridged; the chin is furnished with a small beard; on the back there are three fins resembling those of the common cod-fish; and on each side beyond the gills there is a large black spot. Superstition, always inclined to discover or invent, assigns this mark to the impression St. Peter made with his finger and thumb when he took the tribute-money out of the mouth of this species; which impression

has descended to the whole race of Haddocks in confirmation of this miracle. The lateral line is black; the upper-part of the body is dusky, or brown; the belly, and the lower part of the sides, are silvery; the irides are also silvery; the pupil is large and black; and the tail is bifid.

Haddocks begin to be in perfection about the middle of November, and continue so till the end of January; but, from that period till May, they become very flaccid, and out of season. In May they begin to recover, and continue gradually improving till they arrive at their greatest perfection.

Fishermen assert that, during stormy weather, Haddocks sink to the bottom of the sea, where they shelter themselves in the sand and ooze till the tempests have subsided; after which they are frequently caught with mud on their backs. In the summer season they subsist on young herrings, and other small fishes; and, in winter, they seek after the stone-coated worms, a species of the *serpula* which fishermen call Haddock-meat.

Vast shoals of Haddocks arrive periodically on the Yorkshire coasts; and so regular are they in their annual returns, that for two or three years successively they have been observed to appear on the

the same day of the month. These shoals sometimes extend three miles in breadth; and, in length, from Flamborough Head to Tinnmouth Castle, and perhaps much farther northward.

The following fact may convey some idea of their numbers: Three fishermen, within the distance of a mile from Scarborough harbour, frequently loaded their boat with them thrice a day, taking a tun of fish each time; but, when they sunk their lines beyond the distance of three miles from the shore, they caught nothing but dog-fish, which pursuing the Haddocks as their prey, confine the shoal, like a barrier, within its proper limits.

The large Haddocks quit the Yorkshire coast as soon as they become out of season, leaving behind them prodigious numbers of small ones. On the approach of summer they retire to the shores of Jutland and Hamburg, from whence they make their annual migrations to our coasts.

HÆMATOPUS. A bird called by some authors the pica marina, or sea-pye. In the Linnæan arrangement, this forms a distinct genus of birds of the order of grallæ; the distinguishing characters of which are these: the feet are formed for running; the toes are three in number on each foot; and the apex of the bill is compressed and cuneiform.

HÆMATOPUS ARDEA; the Red-legged Heron. A very beautiful Italian bird, called by the ancients cirris. It is one of the smallest species of the heron kind, and of a yellow chestnut colour.

HÆMORRHUS. See BLOOD-SNAKE.

HAFFHERT. A bird described by Hoier, usually seen at sea, and supposed to be the fore-runner of a storm. It is shaped like the falcon, and grows to the size of the common hen. The beak, which is strong and hooked, entirely resembles that of the falcon, except that it is shorter. Fishermen and mariners dread the appearance of this bird; and, on discovering it, always make towards the shore with the utmost expedition.

HAG, MYXINE. A genus of worms; the characters of which are these: the body is slender and carinated beneath; the mouth is cirrated at the extremity; the two jaws are pinnated; and a rayless fin surrounds the tail and belly.

These worms, which inhabit the ocean, perforate dead bodies, that they may with more facility fall to pieces. They sometimes enter the mouths of fishes on the hooks, when suffered to remain long before they are drawn, and totally devour the whole, except the skin and bones; and they are also frequently found by fishermen in excavated fishes. Linnæus ascribes to them the property of turning water into glue.

A species of this genus, about eight inches in length, is commonly caught near Scarborough; and has been distinguished by the name of the Glutinous Hag.

HAIL. A Brazilian appellation for the animal generally called the sloth. This word seems to be pronounced by the creature itself, as it's common note; and from this circumstance it is said to have derived its name.

HAKE; the *Gadus Merlucius* of Linnæus. This fish is found from one foot and a half to near twice that length. Its make is slender; its back is of a pale ash-colour; and its belly is a dirty white: its head is flat and broad; its mouth is extremely wide; and its teeth are very long and sharp, particularly those of the lower-jaw. The

first dorsal fin is small, consisting of nine rays; and the second, which reaches from the base of the former almost to the tail, is composed of forty rays: the pectoral fins contain twelve rays, the ventral seven, and the anal thirty-nine.

The Hake is generally esteemed a very coarse fish; and, in modern times, has seldom been admitted to the table, either fresh or salted; in which last state it is known by the name of Poor John.

These fish are caught in great abundance on various parts of the British and Irish coasts. Formerly there was a stationary fishery of Hake on the Nymph Bank, off the coast of Waterford; the first shoal arriving in June, during the mackerel season; the other in September, at the commencement of the herring one. In this place it was not unusual for six men to catch a thousand Hake in one night, exclusive of other fishes; these were salted, and exported to Spain, particularly to Bilboa: but Smith, in his History of the County of Waterford, published in 1746, laments that this fishery was on the decline from the defection of the shoals. Indeed, many of the gregarious kinds of fishes are apt to change their situations, and desert their haunts, for a course of years; after which they return again. This irregularity may originate from several reasons; but the most powerful seem to be a deficiency of the smaller fish, which served them as food; and the numbers of predaceous animals which constantly harassed them in their migrations.

HAKE, FORKED; the *Blennius Phycis* of Linnæus. This species is generally about a foot long, and three inches deep; but, according to Dr. Borlase, some are caught upwards of eighteen inches in length. The head, as is common to the other species of this genus, slopes down to the nose; the mouth is large; and, exclusive of the teeth in the jaws, a triangular congeries of small teeth appears in the roof of the mouth. The first dorsal fin is triangular; the second fin rises exactly behind the first, and extends almost to the tail; the ventral fins, which are long, consist only of two rays, united at the bottom, and separated or bifurcated towards the end; the vent is placed in the middle of the body, the anal one extending from thence to the tail; the lateral line is incurvated; the tail is rounded; and the colour is a cinereous brown.

This fish, which is sometimes caught on the coasts of this island, but more commonly in the Mediterranean, is known in Cornwall by the name of the great-forked beard. Linnæus refers it to his genus of blenni; but Pennant seems to consider this as an improper distribution, and arranges it with the gadi.

HAKE, LESSER. Mr. Jago first described this rare species, which few of our modern ichthyologists have had an opportunity of examining. It is said to be about five inches long: it has a small beard, a rounded tail, and bifurcated ventral fins; the colour is black, the skin smooth, and its appearance rude and disagreeable.

HALCYON. See KING'S FISHER.

HALECUA. An appellation given by some ichthyologists to the anchovy. The word is a diminutive of Halec, the classical name for the herring.

HALIÆTUS. A name given by some naturalists to the *Aquila marina*, Nisus, Ossifraga, or Osprey; the *Falco Ossifragus* of Linnæus. This bird is very large, often weighing eleven pounds:
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the head and neck are covered with long narrow feathers; the wings are of a plain chefnut colour; and the tail is principally black and white. The plumage of the body is whitish, brown, and rust-coloured, every distinct feather containing all these three colours; the legs are yellow, strong, thick, and feathered a very little way below the knees; and the claws, which are of a deep shining black hue, are strong, and extremely hooked.

This bird frequents Ireland, and several parts of Britain; and principally subsists on fish, which it seizes, when swimming near the surface of the water, by darting down on them.

HALIOTIS. An appellation sometimes given to the ear-shell. See **EAR-SHELL**.

HARDER. A name given by some authors to a fish of the mullet kind; called by Marcgrave pastor piscis.

HARDY-SHREW. A term by which some naturalists express the *mus araneus*; usually called the Shrew, or the Shrew-mouse.

HARE. In the Linnæan distribution of nature, the Hare makes a distinct genus of animals of the order of glires. The characters are these: there are five toes on the fore-feet, and four on the hind; the ears are long; the tail is short; and there are two cutting-teeth in each jaw. Under this genus are comprehended all the different species of the Hare and rabbit kind.

HARE, COMMON. The Common Hare is one of the most timorous and persecuted of all animals. It is weak and defenceless, and therefore endued in a remarkable degree with the preserving passion of fear: this principle renders it perpetually attentive to every alarm, and keeps it continually in a lean state. In order to enable this creature to perceive the most distant approaches of danger, nature has provided it with very long ears, which, like tubes applied to the auditory organs of deaf persons, convey to it such sounds as are remote; and the motions of the Hare are directed accordingly. It has large prominent eyes placed backwards in its head, in such a manner as to receive the rays of light on every side; so that, while it runs directly forward, it can almost see distinctly behind: its eyes are never wholly closed; for the animal being perpetually on the watch, it even sleeps with them open. The muscles of its body being strong, and without fat, it has therefore no superfluous burden of flesh to carry: and, to assist it in escaping from its pursuers, the hinder legs are considerably longer than the fore, which adds to the swiftness of its motions; and so very sensible is the Hare of this peculiar advantage, that, when started, it always makes towards the rising ground.

This creature being so well formed for a life of escape, it might reasonably be supposed to enjoy a state of tolerable security; but its enemies are so very numerous, that it seldom lives the usual term prescribed to it by nature. Every species of the dog kind pursues it by instinct; the cat and the weasel tribes exercise all their little arts to ensnare it; and birds of prey, ants, snakes, and adders, drive it from its form, particularly during the summer season. But man, as he is its most powerful, so is he also its most inveterate and destructive enemy: it is hunted by the sportsman, shot and snared by the poacher, and often finds its most cruel adversary in the farmer whose lands it frequents. Persecuted thus on every side, did it not find a resource in its amazing fertility, the whole race would long since have been exterminated.

The Hare being amazingly prolific, is capable of conception at the age of a few months: she goes with young but thirty days, and generally brings forth three or four at a time. Buffon, and some other naturalists, strongly assert the doctrine of superfetation, or conception on conception, in this animal; but, as Hares breed frequently in the space of one year, their vast numbers may be accounted for without acceding to an hypothesis which seems contrary to the ordinary course of nature.

The young of these animals are brought forth with their eyes open: their dams suckle them for twenty days; after which time they leave them, and begin to shift for themselves. Hence we may observe, that the education these creatures receive is but trifling, and their family connections but of short duration. With respect to the rapacious kinds, the dam continues to tutor her young for several months successively; teaches them the arts of rapine; and keeps them under her care till they are able to hunt for themselves. But a long connection of this kind would be quite unnecessary, as well as dangerous to the timid animals now under consideration: their food being procured with facility, their associations, instead of affording them protection, would only expose them to their pursuers. However, they seldom migrate far from the spot where they are produced, but each animal makes a form at a small distance; shewing a predilection rather for the place of their nativity than the society of their kind.

These animals repose in their forms in the daytime; and may be said to live only by night, when they go forth for the purposes of coupling and feeding. They do not however pair except at the rutting-season, which begins in February; and then the male pursues and discovers the female by the sagacity of his nose; and they are frequently observed by moon-light, playing about, skipping, and pursuing each other, in the most sportive manner; but the least motion, the slightest breeze, or even the falling of a leaf, is sufficient to disturb their revels; and they instantly fly off, each pursuing a separate track.

Hares live on roots, leaves, fruits, and corn; and prefer such plants as afford the most succulent repast. They also strip the bark from trees during the winter season, and feed almost indiscriminately on the spoils of every tree except the lime and the alder. When kept tame, they are subsisted on lettuce and other hortulane productions; but the flesh of such of them as have been thus brought up, is always destitute of that luxurious relish which distinguishes that of wild Hares.

The Hare seldom lives above seven or eight years at the utmost: it arrives at its full perfection in one year; and this multiplied by seven, the ratio which the maturity of every creature bears to its duration, gives the extent of its life. It is said, however, that the females are longer-lived than the males; and some creditable authors confirm this circumstance, though Buffon seems to question its authority. In our climate, these creatures pass a life of solitude and silence: they are seldom heard to cry, unless when either seized or wounded; and their voice is not so sharp as that of some other animals, but approaches more nearly to the squalling of an infant. They are far less wild than their habits and dispositions seem to indicate, being of a complying nature, and easily susceptible of some degree of education: they even become fond and caressing; but being incapable of attachment to any particular person, they will

strive to regain their native liberty on the first opportunity. As they have excellent ears, and sit on their hind-legs while using their fore-paws as hands, they have frequently been taught to beat the drum, to dance to music, and to perform some part of the manual exercise.

But the natural instincts of Hares for their preservation are far more extraordinary than their artificial acquirements. They make themselves forms particularly in such places where the colour of the grass seems most nearly allied to their own; which forms open to the south in winter, and to the north in summer. The soles of their feet being furnished with hair, their motions are unattended with noise; and, if their strength was equal to their swiftness, no other animals would be capable of overtaking them. But they generally exhaust their powers at the first effort; and are much more easily caught than foxes, which are but slow creatures when compared to them.

When the Hare hears the hounds at a distance, it flies for some time from a natural impulse, without managing it's strength, or using any other means but celerity in order to it's preservation. Having gained some hill or rising ground, and left the dogs so far behind, that it's ears no longer receive their cries, it stops, rears on it's hinder legs, and looks back, for the purpose of satisfying itself whether it's pursuers are still in sight or not: but the dogs having once gained the scent, trace it with united and unerring skill; and the poor animal soon again receives indications of their approach. Sometimes, when hard hunted, it will start a fresh Hare, and squat in the same form; at others, it will creep under the door of a sheep-cot, and conceal itself among the sheep; sometimes it will enter a hole, like the rabbit; at others, it will run up one side of a quickset hedge, and down the other; and it has even been known, when opportunity served, to ascend the top of a cut hedge, and run a considerable way, by which stratagem it has effectually evaded the hounds. It is also not unusual for the Hare to betake itself to furze-bushes, and leap from one to another, whereby the dogs are frequently misled.

ever, the first doubling which a Hare makes generally affords a key to all it's future attempts of that kind, the latter exactly resembling the former.

Young Hares leave a stronger scent behind them than old ones, because they tread heavier in consequence of the weakness of their limbs; and the more fatigued these harmless, persecuted animals, become, the stronger scent they leave behind them. The males are distinguishable by their preferring hard highways, feeding at a greater distance from some cover, and by making their doublings of greater compass than the females. The male, after having taken a turn or two round his form, frequently leads the hounds five or six miles on a stretch; but the female keeps close by some cover side; turns, crosses, and winds among the bushes, like the rabbit; and seldom runs directly forward. In general, however, both the male and female vary their artifices according to the weather: in a moist day, they keep close to the highway, if within their reach, because their scent is then strongest on the grass. If they approach the side of a grove or spring, they forbear to enter, but squat down till the hounds have over-shot them; and then turning along their former track, make to their old form, in hopes of there finding shelter and safety.

The influence of climate is very perceptible on these animals, and indeed on most others. In those countries which border on the north pole, they become white in winter, and assemble in troops of four or five hundred. The Hares of hot countries, particularly of Italy, Spain, and Barbary, are smaller than those of Britain; but such as are bred in the Milanese are said to be the best in Europe. From the torrid zone to the vicinity of the polar circle, there is scarcely a country where these creatures are not found: they inhabit every part of Europe; and most countries of Asia, Africa, and America.

The fur of Hares is of vast importance in the hat manufactory; and many thousands of their skins are annually imported into this kingdom from Russia and Siberia. The flesh of these animals has been esteemed a delicacy by some nations, and utterly detested among others. The ancient Britons, Jews, and Mahometans, all regarded the Hare as an unclean creature, and religiously abstained from tasting it's flesh: on the contrary, there are scarcely any other people, however barbarous, who at present do not consider it as the most agreeable food. Fashion seems so to govern all the senses, that what mankind at one time consider as beautiful, fragrant, or savoury, is at another period, or in another country, regarded as deformed, disgusting, and nauseous. The same flesh, which the ancient Romans so much admired, as to call it the Food of the Wise, was deemed unfit to be eaten by the Jews and Druids; and even the moderns, who unite in ranking the flesh of this animal among the delicacies of the table, have nevertheless very different ideas with respect to the art of dressing it.

HARE, VARYING; the *Lepus Variabilis* of Pallas. This species, which inhabits Norway, Lapland, Russia, Siberia, Kamtschatka, and Hudson's Bay, is also found on the tops of the highest hills in Scotland; but never descends into the vales, or associates with the common Hare. It generally shelters itself in the cliffs of rocks, is easily tamed, and becomes extremely playful and amusing. To-

September it changes it's colour, and in summer dresses about April;

but it is only in the most extremely gelid regions of Greenland where it assumes a colour which remains perfectly white. In Siberia it assumes the colour of snow during the winter, not only in a stationary state, but also when tamed, and kept in the most refined apartments of the natives, as has been proved by experiments. In the last-mentioned country, these animals assemble in troops of six or seven hundred, migrating in the spring, and returning in autumn: to this they are compelled by the want of subsistence; the lofty hills being in the winter a barren season destitute of vegetables for support, they descend to the plains, and change their safe and beloved retreats in the winter for situations which, though they afford them a supply of food, teem with danger.

Varying Hare is smaller than the common Hare. In the summer season it's fur is of a grey colour, with a slight admixture of black; in winter it is tawny; it's tail is always white; it's ears are short; it's legs are slender; and it's feet are closely and warmly furred. In winter, the whole of the animal changes to a snowy whiteness, except the tips and edges of it's ears, which remain black.

In the southern and western provinces of Russia there is a mixed breed of Hares, between this and the common species, which sustains only a partial loss

loss of it's colours; the sides, and the more exposed parts of the ears and legs, becoming white in the severer months, while the other parts remain unchanged. This variety is by the Russians called *Russak*: and prodigious numbers are taken in snares for the sake of their skins only; the Russians and Tartars, like the ancient Britons, holding the flesh of Hares in the utmost detestation.

HARE, CAPE; the *Lepus Capensis* of Linnæus. This species, which inhabits the interior parts of the country near the Cape of Good Hope, frequents the most rocky and mountainous situations, and takes up it's abode in the fissures of the cliffs. The ears are long, and dilated in the middle; the outsides being naked and rose-coloured, and the insides and edges covered with short grey hairs. The crown and back are dusky, mixed with tawny; the cheeks and sides are cinereous; the breast, belly, and legs, are rust-coloured; and the tail, which is bushy, turns upwards. This animal is about the size of the rabbit.

HARE, BRAZILIAN. The Brazilian Hare frequents woods, but never burrows; it is extremely prolific; and it's flesh is highly esteemed. It's ears, which are very large, resemble those of the common kind; it's face is of a reddish hue; it's chin is white; a white ring encircles it's neck; it's body is entirely covered with a dark cinereous fur; it's belly is whitish; and it has not even the very rudiments of a tail.

HARE, ALPINE. This animal has short rounded ears, a long head, very long whiskers, and two very long hairs over each eye. The tip of the fur is white, the middle being of a bright ferruginous hue, and the base dusky; but it is so intermixed with long dusky hairs, that at first sight the whole appears of a bright bay colour.

These Hares, which are about nine inches long, inhabit the snowy mountains of the Altaic Chain, extending to the Lake Baikal, and from thence to Kamtschatka: and they are also said to be natives of the Aleutian or Fox Islands, in the New Northern Archipelago. They sometimes burrow between rocks, but oftener lodge in their fissures. In cloudy weather, they assemble together, and lie on the rocks; but, at other times, they are found in pairs, or more, according to conveniency. Their cry, which is shrill, resembles the chirping of sparrows. On the smallest alarm, they run into their holes, and are therefore shot with much difficulty.

By a providential instinct, these creatures guard against the rigours of their hyperborean retreats. Towards autumn, parties of them collect together vast quantities of the choicest herbs and grasses perfectly dried, which they place beneath the shelter of some impending rocks, between the chafins, or round the trunks of trees. In many parts, these herbs appear scattered, as if with an intention of drying them properly. The heaps, which are of various sizes, according to the number of animals employed in forming them, are sometimes six feet in height, and as many in diameter at their bases; but their usual dimensions are about three feet each way. These ricks are often the origin of fertility among the rocks; for their reliques, mixed with the dung of the animals, rot in the barren chafins, and form a soil productive of various herbs and roots.

The sable-hunters frequently derive the most substantial advantages from the labours of the Alpine Hares: for, being obliged to traverse deserts and mountains at considerable distances from those

places where subsistence for men or horses is to be found, their cattle would often perish through want, did not the ricks of these little provident animals help to support them; which are easily discovered by their height and form, even when totally covered with snow. For this reason the Alpine Hare has a name among every Siberian and Tartarian nation where it is found: a circumstance which marks it's importance to society; for few animals, so diminutive in their size, are noticed in those regions, unless possessed of some valuable or attractive qualities.

HARE, OGOTONA. This animal, which was first noticed by Dr. Pallas, is only six inches long; and the weight of the male does not exceed seven ounces. It has oblong oval ears, a little pointed; it's hair is long and smooth; that of it's body is brown at the roots, light grey in the middle, and white at the tip, intermixed with a few dusky hairs; it's belly is white; the outsides of it's legs are yellowish; and it's nose is marked with a yellow spot; which colour likewise covers the space about it's rump.

This species, which inhabits the vast desert of Mongolia, and the frontiers of China towards Tartary, lives in the open vallies, and on rocky, barren mountains. The Mongolian Tartars call it *Ogotona*. It sometimes burrows like the rabbit, and at the bottom of it's hole forms a nest of soft grass.

These animals, which wander abroad principally in the night-time, feed in the vallies on the tender bark of a sort of service, and the dwarf-elm; and likewise on various vegetables. Before the approach of winter, they collect large quantities of herbs, with which they fill their holes; and, directed by the same instinct as the Alpine Hares, they also form hemispherical ricks of hay, each about one foot high, for their support during the severity of the weather. Hawks, magpies, and owls, indiscriminately prey on them; but their most formidable enemies are the fitchet, the ermine, and the cat.

HARE, CALLING; the *Lepus Pusillus* of Pallas. This curious species is only about six inches in length, and seldom exceeds four ounces in weight. The head is long, and covered with fur to the very tip of the nose; the ears are large and rounded; and the legs are very short. The whole body is covered with very soft, long, smooth fur, of a brownish lead-colour; and, towards the ends, of light grey, tipped with black.

These creatures, which inhabit the south-east parts of Russia, delight in sunny vallies and fertile hills, especially near the margins of woods, into which they can run for shelter on any emergency. Indeed, they are so very timid in their natures, and concealed in their way of life, as rarely to be seen, except such as have fallen into snares laid for ermines. About the Volga they are called *Semlanoi Saetshik*, or *Ground-Hares*: the Tartars give them a name, which, in their language, signifies the *Barking-mouse*, on account of their cry; and the *Kalmucs* call them *Russa*.

The *Calling-Hares* burrow in the earth; forming long galleries, at the ends of which they make their nests: and so numerous and intricate are the avenues which lead to their retreats, that they would with great difficulty be discovered, did not their voice betray them. This voice resembles the piping of a quail, but is so loud, that it may be heard at the distance of half a German mile; and they

they reiterate it, by just intervals, at night and morning, but seldom in the day-time.

The female brings forth six young at a time, blind, and destitute of hair: she suckles them often; and carefully covers them with the materials of her nest.

These creatures are extremely harmless and inoffensive, and easily tamed.

HARE, AMERICAN. This animal is eighteen inches long; and sometimes weighs upwards of four pounds. The ears are tipped with grey; the upper part of the tail is black, and the lower white; the neck and body are mixed with cinereous, rust-colour, and black; the belly is white; and the legs are a pale ferruginous.

This species inhabits all parts of North America. In the southern provinces of the United States, it retains its colours through every season of the year without variation; but, in New England, Canada, and Hudson's Bay, it changes its short summer fur, at the approach of winter, for one very long, silky, and silvery; the edges of the ears only preserving their colour. At this season it is in the highest perfection for the table; and affords many excellent repasts to those who winter in that inhospitable climate.

These Hares breed twice a year, and produce from five to seven at a time. They lodge under fallen timber, and in hollow trees; and in spring shelter their young in the woods, to which, when pursued, they run for protection. They never burrow nor migrate, but always frequent the same places.

HARE, JAVA, or SUMATRA; the *Mus Leporinus* of Linnæus. This animal possesses the same general characters with the Guinea-pig kind: its head is small and slender; its ears are prominent, naked, and round; the upper part of its body is of a reddish colour; the breast and belly are white; the legs are long; the fore-feet are furnished with four toes, the hind with three; and the tail is short. This creature is equal in size to the Common Hare.

HARENGIFORMES. A genus of fishes, approaching to the herring in shape: the principal character of which is, that a serrated line, composed of two scales, runs along the bottom of the belly; to which may be added, that the sides and belly are of a bright silver colour; and that the scales are large and loose.

HARENGUS. See **HERRING**.

HARLEQUIN DOG. A species of Dog not very dissimilar to the small Danish Dog, except that it is longer, and generally of a black and white colour: however, there are some white and cinnamon, and others mottled with various colours.

HARP-SHELL. An appellation given to a species of *dolium*. See **DOLIUM**, and **LYRA**.

HARRIER. A well-known kind of dog, remarkable for his sagacity in tracing, and boldness in pursuing his game. There are several varieties, but all differing in their services; some being adapted for the pursuit of one sort of game, and some for another. See **DOG**.

HART. A stag, or male deer, which has completed his fifth year. If the king or queen hunt him, and he escape, he is called a Royal Hart: if, in consequence of such hunting, he is driven out of the forest, proclamation is usually made in the adjacent places, that, from a regard to the entertainment the animal has afforded the sovereign, no person is to hunt him, or prevent his returning

to his former cover; on which he has usually been called a Hart Royal Proclaimed. See **DEER**.

HARVEST-FLY; Cicada. The name of a large Fly, remarkable for the noise which it makes during the summer months, and particularly about the time of harvest. Authors in general have translated Cicada by the English word Grasshopper; but this is extremely erroneous, the Cicada being a very different creature from the grasshopper. In France, where it is very common, it is called the *Cigale*. Italy, and all the warm climates of Europe, abound with it; and, in almost every country where it is found, the vulgar give it a name expressing the Harvest-Fly; but in England this insect is wholly unknown. It is probable, therefore, that our authors, who, according to the description of the ancients, found the Cicada very noisy, fancied the grasshopper must be the same creature, this being the most querulous of all English insects in the summer season.

The Cicada is furnished with four wings; and its body is short and thick. The great, or common Cicada, is by far the largest of any known species of short-bodied flies; and even the smaller kinds are larger than the hornet.

To the two species of Cicadæ mentioned by Aristotle and the other ancient writers, Reaumur has added a third, of the middle size between the *achetæ* and the *tettigonæ* of antiquity, the greater and lesser Cicadæ of the moderns.

These three species differ not only in magnitude, but also in colour. The large kind is of a deep black brown hue, with a small admixture of yellow on the breast, and on some of the rings of the body: the middle-sized kind, first noticed by Reaumur, is of a paler brown colour, and contains more yellow; but is more particularly distinguished by two cross lines of yellow, which bear some resemblance to the Roman X: and the third kind, the smallest of all, is of a reddish colour with a considerable quantity of yellow. These are the distinctions of Reaumur; who, with a candour that does him honour, acknowledges, that he had not such favourable opportunities as he could have wished of examining the Cicadæ of different countries; and is of opinion, that future naturalists will increase the catalogue of species.

It has been generally supposed, that the noise which the Harvest-Fly, or the Cicada, makes, is occasioned by a swift motion of the wings, and their friction against the breast; together with the grating of the under pair of wings in their passage against the upper ones. Were this the real case, it would be difficult to assign a reason why the female Cicada should not emit the same sound as the male, since she is furnished with exactly the same organs for singing: but, in fact, the matter is far otherwise; and the bare inspection of the body of the male Cicada will prove, that the noise must originate from other causes than have commonly been believed. If with metaphysical precision we only allow that to be a voice, which is an articulation of the air, thrown from the lungs in its passage through the larynx, and other corresponding parts, then indeed the Cicada has properly no voice; but if we extend the meaning of the term, and include the several sounds made by insects with other organs, yet intelligible to their fellow insects, we must allow the Cicada has a voice, and in reality a strong one, the organs of which are not in the lungs and throat, but in the belly, as has been fully proved by Reaumur in his

his History of Insects. By the admirable researches of this ingenious naturalist, it appears, that though the female Cicada is destitute of the organs of sound which are found in the male, she has nevertheless an instrument of peculiar service for lodging her eggs in safety, with which the other sex is not supplied. That the eggs of the Cicada may succeed properly in hatching, it is necessary that they should be lodged in the substance of the wood; and for this purpose the instrument of the female is peculiarly adapted. Indeed, most other insects which deposit their eggs in wood, prefer the young branches and shoots of trees and shrubs in a state of vegetation, where the eggs receive nourishment from the circulating juices: the Cicada, on the contrary, aware that her eggs only want a proper lodgment, always lays them in dry or rotten sticks. She seizes whatever kind of wood she meets with answering this description; and, making a row of perforations, puts an egg into each.

Leaving their first exuviae in the nest, the young insects quit their holes; and immediately dropping on the ground, make their way into it, and remain buried for some time in the form of hexapode worms. Having continued a short space in those subterraneous retreats, they become transformed into a sort of nymphs, endowed with a locomotive power, though they have not attained to their perfect growth. These creatures remain in the nymph state two years; and, at the approach of their final transformation into the fly-state, they quit the earth, crawl up the bodies of trees, and fastening themselves to the branches, pass through the various changes allotted to the insect tribe before they arrive at a state of perfection; after which they become denizens of the sky.

In hot climates, these insects are extremely disagreeable; on account of their discordant, grating noise. The ancients, indeed, revenged themselves by eating them, and accounted them an excellent dish in all their states; but were particularly fond of the nymph, or tetter-gometra. They also preferred the females, when they were full of eggs; and the males, before they had performed the business of impregnation, because of the quantity of semen they contained.

HASELA. A fresh-water fish of the malacotomous or leather-mouthed kind; by some reputed a species of the mullet; and, by others, of the chubb. It is a smooth, soft, and small fish, having an oblong and slender body; and seldom exceeds six inches in length. It is in the highest perfection during the months of April and May; and is caught both in lakes and rivers.

HAVELDA. An appellation given to a bird of the duck kind common in Iceland. It is the *anas caudata Islandica* of naturalists, or the long-tailed Iceland duck.

HAUSTELLUM. A name sometimes used to express a peculiar kind of shell-fish of the genus of purpura; called in French the becasse; and in English, the woodcock-shell. Its beak is remarkably long and slender. There are several species, some of them extremely elegant.

HAUTIN. A provincial appellation for the fish called also the outin, and known among naturalists by the name of the oxyrinchus.

HAWFINCH; the *Loxia Coccothraustes* of Linnæus. An English name for the grosbeak, called frizione by the Italians. See **GROSSBEAK.**

HAWK. A predaceous bird of a bold and generous nature, of which there are several species.

In the Linnaean distribution, the Hawk gives name to a whole order of birds, distinguished by a hooked beak projecting on both sides from the upper mandible; and comprehends four genera, the vulture, the falcon, the owl, and the butcher-bird.

Naturalists are far from being unanimous with respect to the number and division of the Hawk kind. However, the most commodious distribution is into the long and short-winged kinds: the former includes the falcon tribe, properly so called; and the latter the Hawks, such as the Sparrow-Hawk and the Gos-Hawk.

HAWK, RING-TAILED. This species, which is a native of Hudson's Bay, was first described by the ingenious Edwards. It is about the size of the common crow; the bill is of a dark horn-colour, and hooked, as in other Hawks; and the cere is yellow, and thinly beset with black stiff feathers, which also surround the angles of the mouth. The head is dusky or blackish, with a small admixture of white on the forehead near the bill; the hinder part of the head, and the fore-part of the neck, are clay-coloured mottled with dusky brown; the upper part of the neck, the back, and the wings, are dusky brown; but the edges of some of the middle quills are cinereous. The inner coverts are sprinkled with small brown spots; and the inner webs of the quills are transversely barred with faint, narrow, dusky lines. The rump and the covert-feathers of the tail are white, which uniting with the white feathers beneath the tail, form a white ring; the middle feathers of the tail are dusky, and the next on each side of a blueish ash-colour; but the exterior are white; and all of them are marked with eight dusky lines. The belly, breast, thighs, and coverts under the tail, are white, with reddish brown spots transversely waved on the breast and thighs, in the form of hearts on the beginning of the belly, and of crescents on the lower belly and the coverts under the tail. The legs and feet are of a gold colour; the exterior toe is joined to the middlemost by a membrane; and the claws are black.

HAWK, INDIAN, BLACK AND ORANGE-COLOURED. This bird, which is a native of the Brazils, is small-sized, but extremely strong in its make: the bill is perfectly aquiline; the thighs are brawny; the legs are thick and short; and the toes are armed with very sharp and strong talons; so that it may with propriety be called the Little Eagle. The bill is ash-coloured, and covered at the base with a yellow skin; the eyes are surrounded with yellow spaces, encircled with black feathers, which terminate in lines of the same colour drawn down each side of the head and neck; and these black lines are again encompassed with white, extending to the base of the bill. The top of the head, the upper side of the neck, the back, and the upper sides of the wings and tail, are black, shining with a blue and purplish gloss; the sides of the wings are also black; the covert-feathers within side the wings are white; and the inner webs of the greater wing-feathers, and those of the tail, are transversely barred with white and black. The under-side of the bird, from the bill to the tail, is of a bright orange-colour; the legs and feet are of a bright gold-colour; and the claws are black.

HAWK, MARSH. This bird is very large; its wings, when extended, measuring three feet and a half from tip to tip; and from the extremity of the bill to the end of the tail it is two feet long. The bill is of a blueish colour; at the basis of the up-

per mandible there is an orange-coloured skin, in which the nostrils are placed; the eyes are also encircled with an orange-coloured skin; the irides are hazel-coloured; and round the nostrils and the angles of the mouth there are some black hairs or bristles. A black line passes from the bill through the eye; and from the nostrils proceed white lines just above the eyes, which bending down the sides of the head, unite under the throat; there is also a white mark under each eye: the rest of the head, the neck, and the breast, are of a dusky brown colour, with a small admixture of white on the top of the head; the back, wings, and tail, are a dusky brown, except that the latter has four transverse bars of a blackish colour; and the rump and covert-feathers on the upper side of the tail are white. Part of the breast, the belly, thighs, and the covert-feathers under the tail, are a reddish yellow; the legs and feet are covered with orange-coloured scales; and the claws are black.

The Marsh Hawk is a native of Pennsylvania. It frequents the marshes in the summer season, preying on small birds, frogs, snakes, and lizards; but it migrates towards the approach of winter.

HAWK, INDIAN BROWN. This bird is about fourteen inches long: the bill is blueish with a black tip; the irides are yellow; the head, back, and rump, are brown; the coverts of the wings are brown bordered with white; and the quill-feathers are dusky, edged with light brown. The forepart of the neck, the breast, and the belly, are white, marked with numerous yellow lines of a semicircular figure; the tail is a pale brown, transversely marked with four dusky lines; and the legs are of a very faint yellow hue.

HAY. An animal of the monkey kind, about the size of the spaniel-dog; having a face nearly resembling the human, and a belly depending, like that of a sow with young. The hair is greyish; the tail is very short; and the legs are hairy, and furnished with long claws. This creature is naturally very wild, active, and playful; but, when taken and confined, it soon becomes mild and tractable.

HAY-WORM. A particular species of Worm found among hay, with whose origin and changes we are as yet but imperfectly acquainted. It is about half an inch long, and of a whitish colour shaded with faint stripes of a yellowish brown. It has fourteen feet; and possesses other evident marks of its being a real caterpillar.

HAZLE-HEN. A bird of the gallinaceous kind, common in the German woods, and supposed by many naturalists to be the attagen of the ancients. It is about the size of a small pullet; its belly is white; its breast is white, variegated with black; its throat is reddish; and below the beak of the male there are some black feathers, by which it may be distinguished from the female. The head, which is of a greyish brown colour, has on each side of it a white line; the back and rump are prettily variegated like those of the partridge; the sides are of a yellowish or reddish brown hue intermixed with white; the wings and tail are variegated with black, brown, and white; but the latter has also an admixture of red. This bird feeds on vegetables; and its flesh is much esteemed.

HEART-SHELL. A genus of shells by some authors referred to the pectunculus, or cockle kind; but by more modern writers justly made a genus of itself. The distinguishing characters are these: the shell is bivalve, of a globose elated

form, deeply sulcated, in some species imbricated, in others prickly, but never auriculated; and always bearing a general resemblance to the figure of a heart.

This genus contains several very remarkable species; one of the most elegant of which is the imbricated Heart-Shell, called by French conchologists *Faitage*, or *Roof-Shell*, from its resembling the rafters of a house; another species is denominated the Cabbage-Shell, from its undulations, which resemble the garden curled cabbages; and to this genus also belongs the Noah's Ark Shell.

HEATH-COCK. An appellation given by many authors to the common grouse. See **GROUSE**.

HEATH-COCK, RUFFED. This very curious bird, which was first figured and described by Edwards, is nearly of a middle size between the pheasant and the partridge: the bill is like that of the hen, of a brownish horn-colour; the feathers bend forwards to the nostrils, which they cover; those on the crown of the head are pretty long, and Edwards supposes that the bird can erect them like a crest at pleasure. The plumage on the neck, which is long, may be either raised in the form of a ruff, or permitted to lie flat, according to the fancy of the fowl; the head, neck, back, wings, and tail, are beautifully variegated with dark and light brown, together with a small admixture of black; the end of the tail is cinereous, and within that there is a broad transverse black bar; the under-side of the tail is marked and coloured like the upper, except that the shades are fainter; the inner covert-feathers of the wings are light brown and white, but their insides are cinereous; the plumage between the back and the wings is orange and black, with white tips; the throat is a bright brown inclining to orange; the breast, belly, and thighs, are white, with a faint tincture of orange and black semilunar spots on the breast and sides; and the legs are covered down to the feet with white filiform feathers.

This bird spreads its tail like the turkey-cock, and walks with a very stately formal pace, making a noise somewhat like that of the turkey. But it is principally remarkable for the thumping noise it makes with its wings: it will sometimes stand on an old fallen tree, and beginning the strokes very gradually, will repeat them quicker and quicker till they resemble distant thunder, which continues about a minute; and then, after an interval of six or seven minutes, it will renew them. This sound, which may be heard at the distance of half a mile, gives sufficient intimation to fowls of the place of its retreat. It exercises this thumping, during the spring and autumn, about ten in the morning and four in the afternoon. It feeds principally on berries and seeds. The female hatches twelve or fourteen eggs at a brood; and protects her young till the succeeding spring.

The Ruffed Heath-Cock is most commonly found in the United States of America, and is there called a pheasant. It shews a peculiar predilection for a kind of ivy-berry, which is deleterious to several other animals. Dr. Brooke of Maryland observes, that it thumps chiefly during the spring, when its breast swells like that of the pouting pigeon. Lahontan likewise confirms the account of the thumping of this bird in the following words: 'I went in company,' says he, 'with some Canadese, on purpose to see that fowl flap with its wings: believe me, this sight is one of the greatest curiosities in the world; for its flapping

flapping makes a noise much like a drum for about the space of a minute; then the noise ceases for half a quarter of an hour, after which it begins again. By this noise we were directed to the place where the unfortunate bird sat, and found it on a rotten mossy tree. By flapping one wing against the other, it means to call its mate; and the humming noise which ensues thereon may be heard half a quarter of a league.'

HEATH-CKOCK, BLACK AND SPOTTED. This species is a native of Hudson's Bay. It is larger than the partridge, but smaller than the pheasant. The bill is like that of the hen, of a dark lead-colour; the nostrils are covered with black feathers; the fore-part and under-side of the head are black; and between the angles of the mouth and the eyes there is a white spot, and another behind the eyes. White lines proceed from the corners of the mouth; and, passing under the eyes, tend downwards, and unite under the throat. The top of the head, the neck, back, and coverts of the tail, are variegated with black and dusky brown; as are also the covert-feathers of the wings: the quills of the wings are dusky, edged with brown; and the tail-feathers are black, tipped with orange. The breast and belly are black; the lower belly and thighs are black, mottled with brown and white; the legs are covered down to the feet with slender brown feathers, transversely waved with black lines; and the hinder toe is hid in the feathers.

HEATOTOLT. An American bird, described by Nieremberg, and called by some authors *avis venti*. It is remarkable on account of a very large and round crest of whitish feathers on its head; its breast is of a brownish grey colour; its belly is white; and its feet are yellow: its tail, when expanded, is round, variegated with black and white; and its back and wings are black.

HEDGE-HOG. A genus of animals having five toes on each foot, and the body covered with strong short spines.

HEDGE-HOG, COMMON; the *Erinaceus Europæus* of Linnæus. Though the Hedge-Hog has a very formidable appearance, it is one of the most harmless creatures in the universe. Incapable, or unwilling to offend, all its precautions are only directed to its own security; and it is armed with a thousand points, not to invade, but to repel an enemy. While other animals trust to their force, their cunning, or their swiftness, this creature, destitute of all these, has but one expedient for its safety, from which alone it often finds protection: as soon as it perceives itself attacked, it withdraws all its vulnerable parts, rolls itself into a kind of ball, and presents nothing but its spines to the foe; and thus, while it refrains from attempting to injure any other quadruped, it renders itself in a great measure proof against violence.

The head, back, and sides, of this animal, are covered with strong sharp spines or prickles; the nose, breast, and belly, are cloathed with fine soft hair; the legs are short, almost naked, and of a dusky colour; the ears are broad, round, and naked; the eyes are small, and placed high in the head; the mouth is also small, but well furnished with teeth, serving however only to chew its food, being of little use either to attack its enemies or to defend itself. The toes on each foot, which are five in number, are long and ferrated; the tail is little more than an inch long, and so concealed by the spines, as scarcely to be visible.

The prickles are about an inch in length, and very sharp-pointed; their points are white, the middle is black, and the lower part is of the same colour with the tips. From the point of the nose to the extremity of the tail, this animal measures about ten inches when extended.

We have already hinted, that the Hedge-Hog, on the smallest appearance of danger, rolls itself up into a lump; and, altering its whole figure, presents only a roundish mass of prickles impervious on every side. In this form it patiently waits till its enemies either pass by, or are fatigued with fruitless attempts to annoy it. The cat, the weasel, the ferret, and the martin, soon decline the combat; and even the dog generally makes his attacks in vain. Accumulated danger only increases this animal's precautions to keep on its guard. In attempting to bite, the assailant more frequently receives than inflicts a wound. The enraged dog may bark, and roll the animal along with his paws; but it still patiently submits to every indignity in order to remain secure. At length the dog, after expressing his chagrin by barking, leaves the inoffensive animal where he found it; which perceiving itself freed from danger, ventures to peep out from its ball; and, if not interrupted a second time, advances deliberately to its retreat.

Like most wild animals, the Hedge-Hog spends the greatest part of the day in sleep, and is principally in motion during the night. It generally resides in small thickets, in hedges, or in ditches covered with bushes, making a hole about six or eight inches deep, which it lines with moss, grass, or leaves. It feeds on roots, fruits, worms, and insects; but is falsely charged with sucking cows, and wounding their udders: indeed, the smallness of its mouth is sufficient to exculpate it from this reproach. It is also said to be very destructive to gardens and orchards, where it will roll itself, according to the opinion of the vulgar, amongst a heap of fruit, and thus carry off a large quantity on its prickles: but this imputation is as ill-grounded as the former, since its spines are evidently so disposed, that no fruit would stick on them, even were the experiment attempted. In short, instead of being a noxious animal, and deserving proscription, it seems to be very serviceable in destroying worms and insects, which are so prejudicial to vegetation.

But, as vulgar errors are not easily eradicated, we shall rest our opinion on the evidence of the celebrated M. de Buffon. That naturalist acquits Hedge-Hogs of the charge of being mischievous in gardens; but at the same time accuses them of practices which, from their form and habit, we should be little inclined to suspect. 'I have often,' says he, 'had the female and her young brought me about the beginning of June: they are generally from three to five in number; at first they are white, and only the rudiments of their spines appear. I was willing to rear some of them, and accordingly put the dam and her young into a tub, with abundant provision; but the dam, instead of suckling her young, devoured them all, one after another. On another occasion, a Hedge-Hog that had made its way into the kitchen, discovered a little pot, in which was some meat prepared for boiling: the mischievous animal drew out the meat, and left its excrements in the stead. I kept males and females in the same apartment, where they lived together, but never coupled. I permitted several of them to range my garden; they did

did very little damage, and it was scarcely perceptible that they had been there: they lived on the fruits which fell from the trees; they dug the earth into shallow holes; they eat caterpillars, beetles, and worms; and they were also very fond of flesh, which they devoured either boiled or raw.'

These animals, which inhabit Europe and Madagascar, couple in the spring, and bring forth about the beginning of summer. They sleep during the winter; and consequently the stories which have been propagated respecting their providing against that season are certainly false: they are at all times satisfied with a small portion of food; and are capable of subsisting a long time without any aliment whatever. Like all other animals in a dormant state during the winter season, their blood is cold. Their flesh, though generally rejected as unfit for human food, is nevertheless said by some to possess an excellent flavour.

HEDGE-HOG, SIBERIAN; the *Erinaceus Aurius*. This species, which was first described by Dr. Pallas, is common in all the southern deserts from the Dan to the Oby. It is generally much inferior in size to the common kind; but, beyond Baikal, it is found much larger than that species. The ears are large, open, oval and naked, brown round the edges, and internally lined with soft whitish hairs; the upper part of the body is covered with slender brown spines, surrounded at their bases and near their extremities with a ring of white; the limbs and belly are clothed with a most elegant white soft fur; and the tail is extremely short.

These animals, which become extremely fat, sleep during the winter season in holes, each a few inches deep. They feed chiefly on insects; and it has been proved by experiments, that one of them will eat upwards of a hundred cantharides without any sensible injury. They possess all the manners and habits of the common kind; rolling themselves up on the approach of danger, and patiently submitting to insult, provided they can purchase security.

HEDGE-HOG, ASIATIC; the *Tendae* of Buffon. Like the common Hedge-Hog, this animal is covered with prickles, though mixed in a greater proportion with hair; but it does not defend itself by rolling up into a ball. It has a long slender nose, short round ears, and short legs; the face, throat, belly, buttocks, and legs, are thinly covered with fine whitish hair; and the tail, which is very short, is covered with spines. It is about the size of the mole; and inhabits Madagascar, and several of the oriental isles.

Another variety, described by M. Buffon, and somewhat larger, is armed with spines only on the top and hind-part of the head, the top and sides of the neck, and the shoulders; and the rest of the body is covered with yellow bristles, intermixed with a small quantity of black, which are longer than the others.

These animals, which are only varieties of the same species, have five toes on each foot, and inhabit the same countries. They have grunting voices like hogs, grow extremely fat, and multiply prodigiously. They frequent shallow waters, whether fresh or salt; burrow on the land; and lie torpid six months in the year, during which time their old hair falls off, and is renewed on their revival. Their flesh is soft, stringy, and insipid; nevertheless, the Indians eat it, and even consider it as a peculiar delicacy.

HEDGE-HOG, GUIANA; the *Erinaceus Inauris*

of Linnæus. This animal has no external ears, but only two orifices which serve as auditory ducts. The head is short and thick; the back and sides are covered with short spines of an ash-colour tinged with yellow; and the face, belly, legs, and tail, are invested with soft whitish hair. The length of this animal is about eight inches; its tail is short; and its claws are long and crooked. It is a native of the country from which it receives its name.

HEDGE-HOG, SEA. This creature is entirely covered with thick thorns or prickles; its body is round; and its eyes and tail are affixed to its belly. Instead of teeth, it is furnished with two small hard stones, an inch broad, with which it crushes sea-crabs, and other shell-fish, on which it subsists. Its prickles, which are as sharp as needles, are either raised or depressed at pleasure. In the middle of the belly there is a sort of bladder, or bag, filled with wind, of which excellent isinglass is made. It swims very slowly; and consequently would be an easy prey for other fish, was it not so completely armed with spines.

There are several species of these animals, differing from each other in size, and in the disposition of their prickles: some are not larger than a foot-ball, and others are as big as a twelve-inch diameter globe. Their flesh is generally reckoned indifferent food, and some species are absolutely poisonous; nevertheless, the Americans often amuse themselves with the barren pleasure of catching these frightful creatures by means of lines and hooks baited with pieces of the sea-crab. The animal approaches the bait with its spines flattened; but, when hooked and stopped by the line, immediately all its spines are erected; its whole body being armed in such a manner, that it is impossible to lay hold of it: for this reason it is dragged to some distance from the water, where it quickly expires.

HEDGE-SPARROW. The English appellation for a species of the *motacilla*. See **SPARROW, HEDGE.**

HELEGUG. A provincial name sometimes used to express the *anas arctica* Clusii, a web-footed fowl common on the British coasts.

HELIOCENTROS. An appellation given by some authors to a poisonous insect, called by Aristotle *phalangium decticum*, and by the Latins *solipuga*.

HELIX. A kind of shell-fish, or testaceous animal, always found floating on the water, and distinguished by the epithets of *janthina* and *violacea*. It is about the size of the snail; and is supported on the surface of the water by a small cluster of bubbles filled with air, and a tenacious slimy substance. This animal appears to be oviparous; and these bubbles serve only as a nidus for its eggs. It is probable that it never dives to the bottom, nor voluntarily approaches any shore, the shell being exceedingly thin and brittle. Every shell contains a small quantity of fluid, of the most beautiful red purple colour that can be conceived: this gives a lasting and elegant tinge to linen cloth, and is by many esteemed the *purpura* of the ancients. The *Helix* is found in the Mediterranean.

HELMET PIGEON; the *Columba Galeata* of Moore. This bird receives its name from having its head covered with plumage of a distinct colour from that of the rest of its body, and appearing somewhat like a helmet. It is rather larger

larger than that Pigeon called the nun: the head, tail, and long feathers of the wings, are always of the same colour, which is either red, black, or yellow; and the rest of the body is entirely white.

HELMET SHELL. A family of Shells, which may be defined as semiglobose, the back being round or convex, and the under or mouth-part flat. Their clavicles or turbans are nearly flat, and always very short. The mouth, which is long and narrow, ends in a fulcus at the top, which turns very large, strong, and crooked, on the back; the lip is strongly serrated, and rises into a high thick border or ledge on the back; and the pillar is generally strongly toothed, and beset with small asperities.

HELOPS. A fish well known to the ancients, and mentioned by many of the classical writers, as well as the naturalists of antiquity. It seems to have been synonymous with their oniscus, and accipescius, which is generally supposed to mean our sturgeon.

HEMATOPUS. An appellation given by Bellonius, and some other authors, to the bird commonly known in England by the name of the sea-pie, the *pica marina* of Ray.

HEMEROBIUS. A genus of insects of the neuroptera order; the characters of which are these: the mouth is furnished with two tentacula; the wings are deflex without folds; and the antennæ are longer than the thorax, setaceous, and extended. Naturalists enumerate fifteen species. See **CHRYSOPIA**.

HEMIPTERA. In the Linnæan system, this forms the second order of insects, comprehending twelve genera; namely, the blatta, mantis, gryllus, fulgora, cicada, notonecta, nepa, cimex, aphid, kermes, coccus, and thrips. The characters of this order are these: the mouth is either situated in the breast, or inclined towards it; and the upper wings are semicrustaceous, semimembranaceous, incumbent, and unconnected by a straight longitudinal suture, as in the order of coleoptera. The term Hemiptera is derived from Hemisus, Half; and Pteron, a Wing.

HEMISPHERIA. An appellation given by Hill to the genus of flies commonly called the lady-cow or lady-bird; and ranked by Ray and other naturalists among beetles.

HEN. The general name of the female among the winged tribes; but more commonly used to express the female of the gallinaceous kind.

HEN, WATER. A name frequently given to the Moor-Hen, called also the common gallinule. See **GALLINULE**, **COMMON**.

HENBANE LOUSE. An appellation given to a peculiar insect frequently found on the plant from which it receives its name. It is of the order of cimices; its colour is a bright red, spotted with black; it feeds on the juices of the henbane; and it is remarkable that the fetid sap of this plant becomes of an agreeable aromatic flavour in the body of the insect.

These creatures deposit their eggs on the leaves of the henbane about the months of June and July; and in process of time they are hatched into perfect cimices, not into worms. These eggs, which are extremely numerous, yield a fine carnation colour, that seems capable of affording a permanent tinge, by the assistance of allum, and other astringents used in dyeing.

HEN-HARRIER; the *Falco Cyaneus* of Linnæus. This bird, which is properly of the hawk

kind, has been supposed by many naturalists to be the male subbuteo; the female of which is so very different, that it has been called by another name, viz. the ring-tail; but this is certainly a vulgar error, the species appearing by incontestible evidence to be distinct.

The Hen-Harrier is smaller than the ring-tail: the head, neck, and back, are dove-coloured; the scapulars are brownish; the rump is somewhat whitish; the breast is a pure white, variegated with transverse brown spots; the wings and tail are a blueish grey, variegated with black; and the legs are yellow, and smaller than is usual in the hawk kind.

This bird flies near the surface of the ground in search of prey; and is extremely destructive to young poultry and the feathered game. It breeds on the ground; and has never been observed to settle on trees.

HENOTHRIX. The name of a fly of the seticauda or hair-tailed kind; distinguished from the other species by having only one hair, and hence by some called unifeta. The whole body is black, except the middle of the back and belly, which are red; the wings are silvery; and the antennæ are small and black. It is very common in the warm climates; and is usually found on the ammi, or bishop's weed.

HEPATUS. A marine fish common in the Mediterranean, remarkable for its liver-colour; from whence it receives its name. Its figure is broad and flat; it has very prominent eyes; and a remarkably broad tail, near the basis of which there is a large black spot. Its teeth are large, round, and somewhat pointed; and it has only one dorsal fin, the anterior rays of which are prickly, and the posterior soft.

In the Artedean system, this fish is a species of the labrus; and distinguished by the appellation of the labrus with the lower jaw longer than the upper, a forked tail, and black transverse lines on the sides.

HEPSETUS. An appellation given to a small sea-fish, called also anguilla and atherina. It is long, slender, and almost pellucid; the back is variegated with black spots; and the tail is bifid. It is caught on the shores of the Mediterranean, and some other seas. Its flesh is reckoned extremely delicate; but being full of bones, is not much esteemed.

HERBIVOROUS. An epithet given to such creatures as feed only on vegetables, in contradistinction to those which are carnivorous, or feed on flesh.

HERMAPHRODITE. An appellation used to express persons or animals which are furnished with the genital members both of the male and female sexes. Some naturalists and anatomists have expressly denied that there are any of the human race which answer this description; but certain it is, that many of the insect and reptile tribes are really Hermaphrodites.

In the Memoirs of the French Academy we meet with an account of a very extraordinary kind of Hermaphrodites, which not only partake of both sexes, but also perform the offices of both at the same time. Of this class are earth-worms, land-snails, fresh-water snails, and leeches.

The method of copulation practised among these creatures may be illustrated in the instance of earth-worms. These little animals creep, two by two, out of their holes; and dispose their bodies

in such a manner, that the head of the one is turned to the tail of the other. Being thus extended, a little conical button, or papilla, is protruded by each, and received into the aperture of the other.

HERMIT. An animal of the lobster kind, having rough claws, the right being the longest; with the legs subulated, and ferrated on the upper ridge; and the tail naked, tender, and furnished with a hook, by which it secures itself in it's adopted habitation.

This species inhabits the empty cavities of tur-binated shells, changing it's lodgings, according to it's increase of growth, from the small nerite to the large whelk. Nature has denied it the strong covering behind, which she has bestowed on others of this class; and therefore seems to direct it for refuge to the deserted cases of other animals.

Aristotle describes this animal under the name of the karkinion: the moderns call it the soldier, from the idea of it's dwelling in a tent; and the Hermit, from it's retiring into a shell. See **CRAB, SOLDIER.**

HERON. In the Linnæan system, the Heron forms a genus of the order of grallæ; the distinguishing characters of which are these: a long straight, pointed bill, with furrows from the nostrils to the extremity; a linear nostril; and feet having four toes. To this genus belong the ardeola, bittern, cocoi, crane, the gaza giovani or small white Heron, the gaza or greater white Heron, the foco, the night-raven, the stork, and several others.

Though birds of the crane, the stork, and the Heron kind, have a strong affinity to each other, the Heron may be distinguished from them, not only by it's size, which is much less, but by it's bill, which is much longer in proportion; and particularly by the middle claw on each foot, which is ferrated, for the better seizing and securing it's slippery prey. There is also an anatomical distinction in which Herons differ from all other birds, viz. that they have but one cæcum, while all other birds are furnished with two.

Brisson has enumerated no fewer than forty-seven species of this tribe, all differing in figure, size, and plumage; but they all seem possessed of the same manners; and merit one general character of cowardice, rapacity, indolence, and yet insatiable hunger. Other birds become fat by an abundant supply of food; but Herons, though excessively voracious and destructive, are ever lean and craving.

HERON, COMMON; the *Ardea Cinerea* of Linnæus. This bird is remarkably light in proportion to it's bulk, scarcely weighing three pounds and a half, though it's length is upwards of three feet, and it's breadth nearly five. The body is very small, and the skin remarkably thin; the bill is six inches long, very strong and pointed, the edges being thin and rough, the colour dusky above, and yellow beneath; the irides are of a deep yellow hue; and the orbits, as well as the space between them and the bill, are covered with a naked greenish skin. The forehead and the crown are white; the hind-part of the head is adorned with a loose pendent crest of long black waving feathers; the upper part of the neck is pure white, and the coverts of the wings are light grey. The back is cloathed only with down, covered with the scapulars; the fore-part of the neck is white spotted with a double row of black, the plumage being long, narrow, unwebbed, and

falling loosely over the breast; and the scapulars, which are of the same texture, are grey streaked with white. The ridges of the wings are white; the primaries and the bastard-wing are black; and the breast, belly, and thighs, are white, the last being somewhat dashed with yellow. The tail is composed of twelve short cinereous feathers; the legs are of a dirty green colour; the toes are long; and the inner edge of the middle claw is finely serrated.

The female is destitute of the long crest of the male, having only a short plume of dusky feathers; the head is grey; the feathers above the breast are short; the scapulars are grey, and webbed; and the sides are also grey. From the variations of colours between this bird and the male, she has generally been supposed to be of a different species; but Pennant, and all the most accurate naturalists of modern times, consider them as the same.

Though the general appearance of the Heron might naturally enough excite an idea of it's being fitted for a state of warfare, it is nevertheless so very cowardly, as to fly at the approach of a sparrow-hawk. In ancient times, one of the amusements of the great consisted in pursuing this timorous creature with the falcon: and Heron-hawking was once so much admired, that laws were enacted for the preservation of the species; those who destroyed their eggs being subjected to a penalty of twenty shillings for every offence. At present, however, the effects of the ill-judged policy of our ancestors are felt by their posterity; for, as the amusement of hawking is no longer pursued, and stocking fish-ponds has become fashionable, the Heron may be regarded as a destructive and formidable creature: it commits the greatest devastations in fresh waters of all other birds; and there is scarcely a fish that it will not strike at and wound, though unable to carry it away. But the smaller fry constitute it's principal subsistence: these, being pursued by their larger fellows of the deep, seek for refuge in shallow water, where they find the Heron a still more fatal enemy.

The Heron wades into the water as far as possible, and there patiently waits the approach of it's prey; which no sooner appears, than it darts on it with unerring and inevitable aim; and after this manner it will sometimes destroy more fishes in one week than perhaps any other bird in some months. 'I have seen a Heron,' says Willughby, 'which had been shot, that had seventeen carps in his belly at once, which he will digest in seven or eight hours, and then to fishing again. I have seen a carp,' continues he, 'taken out of a Heron's belly, nine inches and a half long. Several gentlemen who kept tame Herons, in order to prove what quantities one of them would eat in a day, have put several smaller roach and dace into a tub; and they have found him eat fifty in a day, one day with another. In this manner, a single Heron will often destroy fifteen thousand carp in a single half year.'

Such are the rapacious powers of this tyrant of the fresh-waters. In general he is seen taking his gloomy stand by the side of a lake, as if meditating mischief, motionless, and gorged with plunder. His usual attitude on such occasions is that of sinking his long neck between his shoulders, and keeping his head turned on one side, as if viewing the pool more intently. When the call of hunger returns, the toil of an hour or two is generally sufficient to fill his capacious stomach; and he retires
long

long before night to his lodging in some wood, which he quits early the ensuing morning, in order to pursue his usual occupation.

But though the Heron generally finds a plentiful supply of food in open and favourable weather, in cold and stormy seasons his prey is no longer within reach, the fish then abiding in the deep as their warmest situation: frogs and lizards also seldom venturing from their retreats during the continuance of such weather, the Heron is obliged to practise abstinence, and to feed on such weeds as the margin of the lake affords. Under such circumstances, he contracts a consumptive disposition, which succeeding plenty is incapable of removing; so that the meagre glutton divides his time between want and riot, alternately feeling the extremes of each: hence, notwithstanding the labour with which he catches his prey, and the amazing quantity he devours, he is always lean and emaciated.

As the Heron is destructive to newly-stocked ponds almost beyond credibility, various modes of retaliation have been adopted. Willughby gives the subsequent receipt for catching him. 'Having found his haunt, get three or four small roach or dace; and having provided a strong hook with a wire to it, this is drawn just within the skin of the fish, beginning without-side the gills, and running it to the tail, by which the fish will not be killed, but continue alive for five or six days. Then having a strong line made of silk and wire, about two yards and a half long, it is tied to a stone at one end, the fish with the hook being suffered to swim about at the other: this being properly disposed in shallow water, the Heron will seize on the fish to it's own destruction. From this method we may learn, that the fish must be alive, otherwise the Heron will not touch it; and that this bird, as well as all those that feed on fish, must be their own caterers; for they will not prey on such fish as die naturally, or are killed by others.'

Though the Heron lives chiefly in the vicinity of pools and marshes, it sometimes builds it's nest on the tops of the highest trees, and on cliffs impending the sea, composed of sticks, lined with wool; and the female lays four large eggs of a pale green colour. Such, however, is the natural indolence of this bird, that it never is at the pains of building a nest for itself, if it can procure one deserted either by the owl or the crow: indeed, it usually enlarges it, and lines it internally; and, should the original possessor happen to renew his claim, the usurper never fails to assume courage sufficient to repel the attack.

The French seem to have availed themselves of the indolence of these birds in fabricating their nests; and they actually provide places fitted with proper materials for their nestling, which they term heronries. In France Herons are deemed proper for the table, and the flesh of the young ones in particular is held in very high estimation. In order to obtain it, the natives erect high sheds along some stream abounding with fish; and having furnished them with fit substances for the Herons to nestle, these birds build and breed there in great abundance. As soon as the young are supposed to be of a proper size, the owner of the heronry carries off such of them as he thinks proper, and sells them to the neighbouring gentry at a pretty high price.

The flesh of Herons was anciently a favourite

dish in England, and was even thought a delicacy fit for a monarch; but as modern times have varied tastes as well as manners, Herons in general now remain unmolested either by the fowler or the epicure. Their nests are often found in great numbers in the midst of extensive forests and groves, where they have long been accustomed to find protection. They seem fond of society; and, like rooks, build their nests contiguous to those of fowls of their kind.

No sooner are the young Herons excluded, than they become voracious and importunate: the old ones are perpetually on the wing to supply them with abundance of food; and the quantity, as well as the size of the fish they take on such occasions, are equally surprizing. By a cruel artifice of sewing up the vents of young Herons, (which increases their screamings, while it renders them incapable of partaking of the prey so liberally provided for them) some persons have found means to procure a considerable quantity of fish for several days together, by plundering their nests; till the old ones, tired out with an importunity which they could not gratify, have deserted their young, and left them to their fate.

The Heron is said to be a very long-lived bird: according to Keyser's account, it may sometimes exceed the age of sixty years; and, by a recent instance of one caught in Holland, it's longevity is again confirmed, the bird having a silver plate fastened to one leg, importing, that it had been struck for the elector of Cologne's hawks thirty-five years before.

HERON, GREAT WHITE. The length of this bird, from the tip of the bill to the end of the claws, is four feet and a half, and to the end of the tail three feet and a quarter; the expansion of the wings is nearly five feet and a half; and the weight is about two pounds and a half. This bird being entirely white, may thereby be distinguished from the common Heron; it may also be known by it's inferior size, the length of it's tail, and it's being destitute of a crest. It is seldom seen in England.

There is another variety, called the lesser white Heron, which only differs from the preceding in size, and in being adorned with a crest. A third variety is still smaller: the top of the head and the neck are of a saffron colour, as well as part of the breast; but the rest of the body is white.

HERON, LITTLE WHITE, OF CATESBY. The body of this species is entirely white; the bill is red, and a little crooked; the irides are yellow; and the feet are green.

HERON, RED-LEGGED. This bird is generally supposed to be the least of the kind. The neck is short; the body is entirely of a saffron colour, inclining to chesnut, deeper underneath, and fainter above; the tail is so very small, as to be scarcely perceptible; the bill is of a blueish green hue near the head, but black towards the extremity; and the legs and feet are a deep red.

HERON, ASH-COLOURED, NORTH AMERICAN. This species, which is somewhat larger than the common Heron, differs from it in having a brown back, in wanting the white feathers on the forehead, and the black spots on the sides below the bottom of the neck. The bill is straight, sharp-pointed, six inches long, and ferrated both above and below towards the extremity; the upper chap is channelled and black; and the nostrils are placed pretty near the head. Between the nostrils and the eyes the skin is naked, and of a greenish yellow hue;

hue; the lower chap is orange-coloured; and the top of the head is covered with long black feathers, forming a pendent crest. The sides and upper part of the head are white; the neck is covered with long, brown, slender feathers, transversely barred with dusky on the hinder part; the back, and the upper sides of the wings and tail, are of a brownish ash-colour; and the skin which connects the joints of the wings is covered with dusky feathers tipped with red. The breast is white, sprinkled with long black spots, mixed with a little reddish brown; the thighs are of a reddish brown colour; the belly is white; the back is invested with a cinereous down, concealed by the long feathers springing from the shoulders; the legs are covered with dusky scales; the claws are black; and the outer toes are joined to the middle ones, towards their bases, by a thin web.

HERON, YELLOWISH ASH-COLOURED, OF MARSEILLES. This species resembles the common Heron in shape; but its colours are different, and it is destitute of a crest. The bill and the head are very long; the neck is cinereous; the belly is ash-coloured, and several black and brown lines run between it and the throat; the upper part of the tail and back are red; the prime-feathers of the wings are black; and the coverts are of a deep yellow hue.

HERON, YELLOW AND GREEN. The bill of this species is three inches long, black above, and yellow underneath; the irides, as well as part of the neck down to the chin, are white; but the remainder of the neck, the top of the head, the breast, and the belly, are variegated with brown lines; and the back is black. The wings are yellowish with black spots; the tail-feathers, which are short and white, exhibit the appearance of hair; the thighs are cinereous; the feet are black; and the claws are yellow at their extremities. This bird is a native of France, and some other continental countries.

HERON, BRAZILIAN, WITH A SERRATED BILL. This bird is somewhat larger than the duck: the fore-part of the bill, both above and below, is double notched; the irides are of a gold colour; and all the upper part of the head and neck has pretty long feathers, of a pale yellow hue, mottled with black. The lower part of the neck, the breast, and the lower belly, are covered with white feathers waved with brown; but the back and wings are brown undulated with yellow. The prime-feathers of the wings have an equal mixture of black and ash-colour; and the tail-feathers are transversely barred with white lines.

HERON, BLACK, OF ALDROVANDUS. The neck of this bird is considerably shorter than that of the common Heron; the colour is every where uniform, being blackish, except on the neck, where it is encompassed with a white ring; and the bill is yellow, with a black spot at the end of the upper and lower mandible.

HERON, CRAB. This bird, which is common in the Caribbee Islands, receives its name from feeding usually on crabs. Of this species there are two varieties. The first differs very little from the European Heron, except that it has four large yellow spots on the skin of the belly, and an equal number on the thighs: these spots, which are bitter as gall, must be carefully extracted after the bird is killed, otherwise they impart a very disagreeable bitterness to the flesh, which, when properly dressed, is esteemed pretty good.

The other variety of the Crab Heron is very beautiful. The body is of a larger make than that of other birds of the same genus, and yet the neck is three inches longer than the whole body. The wings are of an equal length with the tail; and the legs are long, slender, and greenish. The head is black; and on its top there is a beautiful tuft of blueish feathers, below which there are two pendent plumes of fine slender slate-coloured feathers about nine inches in length: the eyes, which are large and bright, are surrounded with a gold-coloured circle; on the lower part of the neck there are five or six elegant white plumes, which are extremely valued by the natives of the Caribbees, especially as they are only found on old birds. The whole back is covered with elegant blueish feathers; and the plumage of the wings is of the same colour.

HERON, BLUEISH BLACK. This bird, which is sometimes called the black and blue gaulding, is about eighteen inches long; the bill, which measures two inches and a half, is covered near the base with a green skin, but the rest is blueish; on the top of the head there is a crest of long blueish black feathers; of which colour likewise is the whole body, except the breast and belly, which are lighter; and the legs, which are seven inches long, are covered with greenish scales.

HERON, BLUE. This species is about the size of the common Heron; its length, from the tip of the bill to the end of the toes, is three feet; and its weight is nearly three pounds. The bill is wholly black, slightly incurved downwards, and hooked at the point; the head is adorned with a beautiful crest of sky-blue plumes; but the sides of the head from the bill, and the under part next the eyes, are white. The covert and scapular feathers of the wings are of a pale blue colour, but the quill-feathers are black with blue edges. The rest of the body is of a blueish lead-colour; the feet are yellowish, with very long toes; the middle claw is serrated; and the exterior toes are connected to the middle by a membrane.

HERRING. The Herring is a species of the clupea. Its distinguishing characters are; that there are eight branchiostegous rays; and that the belly is extremely sharp, and frequently serrated.

Herrings differ greatly in size; but their usual length is from nine to twelve inches. The back and sides are green varied with blue, and the belly is silvery; a scaly line runs along the belly from the head to the tail; the scales, which are large and thin, easily fall off; the eyes are very large; the edges of the upper jaw, and the tongue, are very rough, but the mouth is destitute of teeth. The gill-covers are extremely loose and patulous, which occasions the immediate death of the fish when taken out of its native element; and hence the well-known proverb, 'As dead as a Herring.' The dorsal fin consists of seventeen rays; the two ventral fins have nine, the pectoral seventeen, and the anal fourteen. The tail is extremely forked; the lateral line is hid beneath the scales; and the sides are compressed.

Herrings are found in the greatest abundance in the higher northern latitudes. In those unnavigable seas which are covered with ice for a great part of the year, they find a quiet and safe retreat from all their numerous enemies: thither neither man, nor their still more destructive enemy the fin-fish, nor the cachalot, dares to pursue them. The quantity of insect food which those seas sup-

ply is amazing; which, added to the security of these fishes under the icy rigour of the climate, render their increase great beyond expression; and from these retreats some authors are of opinion they would never depart, did not their numbers render it necessary for them to migrate in quest of food congenial to their appetites.

The great colony of Herrings sets out from the icy seas about the middle of winter: it is composed of vast numbers, even beyond conception; but no sooner is it in motion, than millions of enemies appear to thin the squadrons. The fin-fish and the cachalot swallow hundreds at a yawn; the porpus, the grampus, the shark, and all the numerous tribes of dog-fish, find them an easy prey; and, desisting from mutual carnage, unite in devouring these defenceless animals: while the myriads of sea-fowl that frequent the polar regions watch the progress of their migration, and are nearly as fatal to them as their enemies of the deep.

Thus surrounded with foes which they can neither avoid nor repel, these helpless emigrants find no other safety but that of crowding closer together, and leaving the extreme ranks to be first destroyed. However, they soon separate into shoals, one body of which moves westward, and pours down along the coasts of America as far as Carolina. In Chesapeake Bay, the annual inundation of these fishes is so great, that they cover the shores in such quantities as to become a nuisance. Those which hold more to the eastward, and direct their course for Europe, endeavour to save themselves from their unrelenting pursuers by approaching the first shore they can find; and accordingly make their descent on Iceland about the beginning of March. When they arrive on that coast, their phalanx, though it has suffered considerable diminutions, is nevertheless of amazing extent, depth, and closeness, covering a space as large as the island itself; the whole element seems as it were alive, and the numbers appear inexhaustible.

That shoal which visits the British coasts, begins to appear off the Shetland Isles in the month of April. This is the forerunner of the grand shoal which descends in June, whose appearance is announced by the numbers of its voracious attendants, the gannet, the gull, the shark, and the porpus. When the main body is arrived, its breadth and depth is such as to alter the very appearance of the ocean. It is divided into distinct columns of five or six miles in length, and three or four in breadth; while the water curls up as the Herrings advance, and appears as if forced from its bed. Sometimes they sink for the space of ten or fifteen minutes, then rise again to the surface; and, in bright weather, reflect a variety of splendid colours, like a field bespangled with azure, gold, and purple.

From the Shetland Isles, where this great army divides, one body moves off to the western coasts of Ireland, where it meets with a necessity of dividing a second time: one party taking to the Atlantic, is soon lost in that extensive ocean; the other passing into the Irish Sea, furnishes a very considerable capture to the natives. The second grand division, which takes place at Shetland, visits the northern shores of this island; and then entering the British Channel, passes the Land's End, and soon after totally disappears.

Thus the Herrings, expelled from their native seas, seek those bays and shores where food presents itself in greatest plenty, and where they are

the least liable to meet with their cruel pursuers of the deep. In general, the larger rapacious animals of the ocean avoid the more populous shores; and these are chosen by Herrings as an asylum from more imminent danger. Thus, along the British coasts, and those of Norway, Germany, and France, they are found punctual in their visitations: nevertheless, they are sometimes capricious in their migrations; and have been known to frequent particular shores for a series of years, and then to relinquish them for ever.

Towards the end of June, Herrings are in full roe; and they continue in perfection till the beginning of winter. The young ones approach the shores in the months of July and August, and are then from half an inch to two inches in length. Few young Herrings being found in our seas during winter, it is generally supposed that they return to their native haunts beneath the ice, in order to repair the vast destruction of their race in the summer. Some old ones continue on our coasts the whole year, but their number is very inconsiderable.

The Herring-fishery is of very remote antiquity. The Dutch, remarkable for their persevering industry, first engaged in it about the year 1164: they kept possession of it for several centuries; but at length its value became so well known, that it gave rise to several obstinate contests between them and the English. Still, however, either from some defect in our government, or the mode of conducting our fisheries, the Dutch maintain a decided superiority over us in this lucrative branch of trade.

Our great stations are off the Shetland and Western Isles; and on the Norfolk coast, in which the Dutch also participate. Yarmouth has long been famous for its Herring-fair, which was regulated by act of parliament in the reign of Edward III. That town is obliged by its charter to send to the sheriffs of Norwich one hundred Herrings, to be made into twenty-four pies, by them to be delivered to the lord of the manor of East Carleton, who is to convey them to the king; and hence the facetious Dr. Fuller calls the Herring a Norfolk capon.

Immense quantities of Herrings are annually caught on the British coasts; many of which are consumed while fresh; and the rest are either salted, pickled, or smoke-dried, and exported to various parts of Europe.

Considered as an aliment, fresh Herrings are perfectly innocent if moderately used; but, when taken in quantities disproportioned to the digestive powers, they frequently produce a putrefaction in the stomach of the alkaline kind, and are otherwise attended with very pernicious consequences. Pickled Herrings are always unwholesome food, their flesh being rendered hard, and scarcely digestible by the vital powers: these, however, are less injurious than such as are salted and dried; the last being more hardened, and consequently less easy of digestion.

Viewed in a medicinal light, the Herring is said to be of considerable importance. The vesicles called animæ, taken internally, are said to be diuretic. Salted Herrings are sometimes applied to the soles of the feet in fevers, with intent to draw the humours from the head, and to mitigate the febrile heat. Herring-pickle is used in clysters for the dropsy, and pains in the hips; and, externally applied, it mundifies foetid ulcers, checks

the progress of gangrenes, and dissipates stumous swellings. It is also said to be beneficial in the quinsy, if the parts affected are anointed with a mixture of this and honey.

The Dutch Herring-fishery commences on the fourteenth of June, in which no less than a thousand vessels are employed: these, which are called *busses*, carry from forty-five to fifty tons, besides two or three small cannon. None of them are allowed to quit their ports without a convoy, unless they carry twenty pieces of cannon collectively, in which case they are permitted to sail in company. Before they proceed on their voyage, the owners make a verbal agreement, which carries in it all the force and authority of the most solemn compact. The regulations of the admiralty of Holland, with a few variations, are followed by the French and other nations: the principal of which are; that no fisher shall cast his net within one hundred fathoms of another's boat; that while the nets are cast, a light shall be kept on the hind-part of each vessel; that when a boat is obliged by any accident to desist from fishing, the light shall be cast into the sea; and likewise, that when the majority of the fleet leaves off fishing, the rest shall be obliged to do the same.

From the middle of September to the middle of October is the most successful period for fishing on the Norfolk and Suffolk coasts. The nets which are used for Herrings are about five yards deep, and twenty-five long; and sometimes such numbers of them are united, that they will take in a mile in compass. The fishermen are directed to those spots where the Herrings are most numerous by the hoverings and motions of the sea-birds, which continually pursue them in expectation of prey. As the fishermen row gently along, they let their nets fall into the sea, steering their course, as nearly as they are able, against the tide; so that, when they draw them, they may have the assistance of the tide. As soon as any boat has procured a lading, it makes to the shore, and delivers the fish to those persons who are appointed to wash and gut them. They distinguish their Herrings into six different sorts: the Fat Herring, which is the largest and thickest of all, and will keep about two or three months; the Meat-Herring, which is likewise large, but less fat and thick than the former; the Night-Herring, which is of a middling size; the Pluck, which has been somewhat damaged in catching; the Shotten Herring, which has lost its spawn, or milt; and the Copshen, which by some accident or other has been deprived of its head.

All these kinds of Herrings are deposited in a tub with salt or brine, where they are permitted to lie for twenty-four hours: they are then taken out, put into wicker-baskets, and washed; after which, they are fixed on small wooden spits, and hung up in chimnies built for that purpose, at such distances that the smoke may have free access to them all. When these places, which will contain ten or twelve thousand fish, are filled, a quantity of billets is laid on the floor, and set fire to, in order to dry them; and the doors and air-holes being closely shut, the whole place is immediately filled with smoke. This operation is repeated every quarter of an hour: so that a single barrel of Herrings requires five hundred billets to dry them. A last consists of ten barrels, and each barrel contains about a thousand Herrings; which, when thus prepared and dried, receive the appellation of Red-Herrings.

The Dutch are most expert in pickling these fish; and for that purpose they take them about the middle of summer. Their usual method of procedure is as follows: As soon as the Herrings are liberated from the nets, they are gutted and washed; then they are put into strong brine, made of water and sea-salt, for fifteen hours; after which they are taken out, well drained, and regularly disposed into barrels, with a layer of salt at the bottom of each, and another at the top. Care is likewise taken that no air be admitted, nor the brine suffered to leak; either of which would be injurious to the preservation of the fish.

HERRING GULL; the *Larus Fuscus* of Linnæus. A bird of the *larus* kind, about the size of the duck, remarkable for its voraciousness, and particularly for devouring vast numbers of Herrings. See **GULL**, **HERRING**.

HIATICULA. See **LARK**, **SEA**.

HIATULA. An appellation given by some naturalists to the fish more usually called the channa.

HIATULA is also a name by which Gaza and some others have called the chama, a genus of shell-fish distinguished from other kinds by always keeping its shell in some measure open; and, in many species, it is incapable of shutting it entirely.

HICKWALL. A small species of woodpecker, called by authors *picus varius minor*: it weighs about an ounce; and its colours are a beautiful variegation of black, white, and brown. The male has a red spot on the crown of the head, and the female a red one; which marks sufficiently distinguish the sexes.

HIMANTOPUS. An aquatic bird constituting a species of *charadrius* in the Linnæan system, very remarkable for the length and slenderness of its legs. The breast, belly, and throat, are entirely white; the back, wings, and beak, are blackish; the tail is of a whitish grey colour; the neck is marked with several oblong black spots drawn downwards; and the legs and feet are red.

HIND. A female stag of the third year. See **DEER**.

HIPPELAPHUS. An animal of the deer kind, said to be found in some parts of Norway. It is about the size of the elk; and, with respect to shape, partakes both of the horse and the stag. The chin and throat are furnished with a kind of beard; the body is well compacted; the legs are long and slender; and the tail is very short. This animal has a mane like that of the horse; a prolongation of which is perceptible from the shoulders to the tail along the dorsal spine.

HIPPO. A species of coluber; the scuta of whose abdomen are a hundred and sixty, and the squamæ of the tail a hundred.

HIPPOBOSCOS. The name given by naturalists to the horse-fly, and forming a genus of the diptera class of insects in the Linnæan system. The Hippoboscus is about the size of the common fly; its body is broad, flat, smooth, and of such a firm texture, that it is with difficulty crushed or broken by the fingers. It is remarkable for the obliquity of its flight.

HIPPOCAMPUS. This creature, which is usually caught in the Mediterranean, is a species of the *syngnathus* in the Linnæan system. Its name is derived from *Ippos*, a Horse; and *Kampe*, a Caterpillar; its head resembling a horse, and the rest of its body a caterpillar.

The Hippocampus is frequently caught about three inches in length; it is as thick as the fore-finger;

finger; the snout, which is long and tubular, is furnished with an operculum below, which opens or shuts at the pleasure of the animal; the eyes are round and prominent, and between them there are two prominent tubercles. The body, down to the anus, is heptahedral, and terminated at the angles by a sort of thorny protuberances; from the anus to the tail the shape is only three or four-sided, and terminates in a point twisted into a sort of spiral line. It has two auriform gills; above which there are two apertures opening upwards. This creature has likewise two apertures on the belly, one of which serves for an excretory duct, and by the other the female deposits her eggs. The whole body is composed of a sort of annular cartilages, from distinct parts of which are propagated a kind of prickles. While fresh, the colour is a dusky green, blackish towards the tail, and spotted on the belly with blueish white specks; and a single fin runs along the back, of an equal height from it's rise to it's termination. Some varieties of this species have a mane, but in general they are destitute of this character. However, animals of this kind are hairy in many parts of the body, and particularly about the head; but the hairs quickly fall off in drying.

HIPPOGLOSSUS. In the Linnæan system, the Hippoglossus is a species of the pleuronectes; and is known in England by the name of the holibut. See **HOLIBUT**.

HIPPOPOTAMUS; the Sea, or River-horse. In the Linnæan distribution, this creature forms a distinct genus of animals of the order of belluæ, in the class of mammalia; the characters of which are: that there are two paps situated in the groin; that the dentes incisores are six above and four below, the upper ones being placed at distances by pairs, and the lower ones prominent; that the dentes canini are single, appearing as if obliquely cut off; and that the feet are hoofed at their margins.

The Hippopotamus is as large and formidable as the rhinoceros; and, in magnitude, inferior only to the elephant. The male has been found to measure seventeen feet in length, from the extremity of the snout to the insertion of the tail; the circumference of the body is fifteen feet, and the height nearly seven; the legs are three feet long, and the head almost four: the head, indeed, is of an enormous size; and the very jaws extend upwards of two feet. The ears, which are small and pointed, are internally lined with fine short hair; the lips are beset with strong hairs scattered in bunches; and the body, which is of a lightish colour, is thinly covered with hair, at first sight scarcely perceptible.

Some writers have erroneously given this animal a mane: however, the hair on that part being somewhat thicker than on the rest of the body, that circumstance probably gave rise to the mistake. The skin is very thick and strong; and though incapable of resisting a musquet-ball, is nevertheless impenetrable to the stroke of a sabre. The tail is about a foot long, flat, and pointed; the hoofs are divided into four parts, and in some measure resemble those of the elephant; but though the Hippopotame is an amphibious animal, they are unconnected with membranes. The whole figure of this creature is something between that of the ox and the hog; and it's voice bears some resemblance to the bellowing of the one and the grunting of the other.

Though the Hippopotamus seems well adapted by nature for a state of hostility, it is but little disposed to exert it's prodigious strength against an equal adversary. It chiefly resides at the bottoms of the great rivers and lakes of Africa, from the Niger to the Cape of Good Hope: it is found in none of the African rivers which empty themselves into the Mediterranean except the Nile, and even there only in Upper Egypt, and in the lakes and fens of Ethiopia through which that mighty river devolves it's stream. In these situations it leads an indolent kind of life, seldom appearing disposed for action, except when prompted by the calls of hunger. It pursues it's prey in the water with great swiftness and perseverance; and is capable of continuing at the bottom for the space of half an hour, without ever rising to the surface for respiration. It traverses the bed of the stream with the same facility as if it were walking on land; and makes terrible devastation in those places where prey offers itself in abundance: but, when fishy aliment begins to fail, it is compelled to exchange it's aquatic retreats for the land, where it moves along very awkwardly and slowly. If it cannot procure food on the margin of the river, it reluctantly ascends the higher grounds, where it commits dreadful havock on the sugar-canes and plantations of rice and millet; and also feeds on the roots of trees, which it loosens with it's vast tusks.

When the hapless natives behold their possessions thus destroyed by this animal, they beat drums, light fires, and raise a hideous outcry, in order to frighten it back to it's native element; and as the creature is extremely timorous on land, these stratagems generally prove successful: but, if ever it happens to be wounded, or too much irritated, it then becomes formidable to all that oppose it; overturning every thing that comes in it's way, and appearing possessed of amazing strength. When pursued, it takes to the water, and sinks to the bottom; but frequently rising again to the surface, with it's head in view, bellows in the most hideous manner. When wounded, it sometimes attacks boats or canoes with great fury, and often sinks them by biting large pieces out of their sides; for the Hippopotame is not less resolute in the water than timid on the land. However, the principle of self-preservation alone seems to actuate this creature's rage: if unmolested, it never attacks the mariners nor their boats; but, should an affront, either intended or accidental, be offered to it, it's revenge is instantaneous, and often fatal. 'I have seen,' says a certain mariner, 'one of these animals open it's jaws; and, seizing a boat between it's teeth, at once bite and sink it to the bottom. I have seen it, on another occasion, place itself under one of our boats, and rising under it, upset it with six men in it, who however happily received no other injury.'

Such then is the prodigious strength of the Hippopotamus; and from hence, probably, fancy has been inclined to match it in combat against other animals more fierce and equally formidable. The crocodile and the shark have been said to enter the lists against it, and to yield it an easy victory; but as the shark is only found at sea, and the Hippopotamus never ventures beyond the mouths of fresh-water rivers, it is most probable that these engagements never existed but in the imagination. It sometimes happens indeed, that the African princes amuse themselves with combats on their lakes, between this and other formidable animals;

but

but whether the rhinoceros or the crocodile are among the number, we are not competent to ascertain. The negroes venture to attack the shark and the crocodile in their native element, and frequently destroy them; but so sensible are they of the superior powers of the Hippopotamus, that they seldom even dare to provoke it.

As the Hippopotamus feeds on fish and vegetables, so it is highly probable that the flesh of terrestrial animals is equally grateful to it. The natives of Africa assert, that it sometimes devours children, and other creatures which it is able to surprize by land; but as it's motions are extremely slow, animals in general are endued with sufficient powers for escape.

A herd of females has but a single male. The female always brings forth her young on the land, and seldom produces more than one at a time: at such seasons she is extremely timorous; and no sooner hears the slightest noise, than she dashes into the stream, and is immediately followed by her offspring.

These animals are capable of being tamed; and Belon says he has seen one so gentle, as to be let loose out of a stable, and fed by it's keeper, without attempting any mischief. In some places they are taken by means of pitfalls; in others, the natives place boards, stuck full of sharp pieces of iron, in the corn-grounds, which wounding their feet, render them an easy prey.

The young ones are said to be excellent food; and the negroes, who are in general not very delicate in the choice of their viands, evidence an equal partiality for the old. Dr. Pococke informs us, that he has seen their flesh exposed to sale in the shambles; and we are told that the breast in particular is not less delicate than veal. The teeth of these animals are harder than ivory, and not so liable to turn yellow; and their skins, which when dried are almost impenetrable, are fabricated into bucklers.

This animal, which seems to be the behemoth mentioned in the book of Job, was certainly known among the Romans; for Augustus is said to have exhibited one on the occasion of his triumph over Cleopatra.

HIPPOTAUROS. The name of a creature said to be generated between the bull and the mare. Unnatural as this connection may seem, Wagner, in his History of Switzerland, assures us, that the animal produced by this intercourse is sometimes found wild in the mountainous parts of that country.

HIPPURIS. An appellation given to a large sea-fish, the *Coryphæna Hippuris* of Linnæus, having a bifid tail, and sixty dorsal rays; bearing a strong resemblance to the dorado, or gold-fish. This creature is remarkable for a sort of crest which rises immediately behind it's head, and is continued in a long fin to it's tail; and for another, in some measure answering the above, reaching from the anus to the tail. Aristotle justly observes, that the Hippuris grows the quickest of all fish. It is caught on the coasts of Spain, and some other shores, generally about the month of August; and it's flesh is very delicate and well-flavoured.

HIRARA. A Brazilian animal strongly resembling the hyæna.

HIRUDELLA MARINA. A very singular little animal of the leech kind, having a roundish oblong body, adorned with many longitudinal

lines or furrows. It is about an inch long, of a greyish colour, and somewhat transparent; it's bowels, which are visible through the skin, appear at first sight like streaks on it's surface; and in the middle of the belly there is a remarkable protuberance, which, when closely examined, is found to be a muscular body, in the shape of a spherical bladder: this, when fully distended, exhibits the appearance of a spherical air-pump, and has all the properties of that machine, which the animal employs at convenience. It's common figure resembles the cup of an acorn, with the mouth a little contracted. The head of the animal resembles that of the common leech. That part of the body which reaches from the head to the middle protuberance is of a very irregular form, frequently in motion, and continually varying it's shape; but the other parts move more slowly and less frequently, and preserve their figure unaltered.

When this creature is desirous of affixing itself to any other body, it makes use of it's protuberance applied closely to the substance, and exhausted of air: hence the external air so firmly presses it's sides against the object, that it is with difficulty removed.

HIRUDO. See **LEECH**.

HIRUNDO. The classical name of the swallow. See **SWALLOW**.

HISTRIX. See **PORCUPINE**.

HOACTLI. An American bird described by Nieremberg, about the size of the common hen. The legs and neck are long; the head is black, and adorned with a beautiful crest of the same colour; the whole body is white; but the tail and the upper sides of the wings are grey. The wings have a greenish cast; the back is sometimes varied with black feathers; the legs are of a pale white colour; and a circle of white, beginning at the eyes, encompasses the head. This bird is common near the Mexican lakes, and builds it's nest among the reeds and sedges that fringe their margins.

HOACTON. A Mexican bird described by Nieremberg; which, according to his account, seems to be of the heron or bittern kind. The belly and neck are white, slightly varied with brown; the rest of the body is brown, variegated with white; and the eyes are large, with pale-coloured irides.

HOACTZIN. An appellation under which Nieremberg has brought to our notice a species of American bird about the size of the hen. The beak is crooked; the breast is of a yellowish white colour; the wings and tail are variegated with large pale grey and white spots; the neck and back are of a brownish yellow hue; and the head is adorned with a crest of white feathers, the inner webs of which are black. This bird, which is seen near Mexico in the autumnal season, generally frequents high trees in the vicinity of waters. It feeds on snakes and other reptiles; and it's voice is loud and disagreeable.

HOANGICOYA. The name of an amphibious animal, said to be a bird in summer, and a fish in winter. See **CROCEUS**.

HOBBY; the *Falco Subbuteo* of Linnæus. This bird, which is of the long-winged hawk kind, was formerly used in the humbler walks of falconry, particularly in what was termed Daring of Larks. For this purpose the hawk was cast off when the larks, aware of their most inveterate enemy, kept close to the ground through fear, and thereby

thereby gave the fowler an easy opportunity of drawing a net over them.

The Hobby has a prominent and crooked bill, covered at the base with a yellow skin; the upper mandible is furnished with a process; the irides are hazel-coloured; and above each eye there is a white line. The crown of the head, the back, and the coverts of the wings, are of a deep blueish black hue; the hind-part of the head is marked with two pale yellow spots; and each cheek with a large black spot pointing downwards. The interior webs of the secondary and quill-feathers are variegated with oval, transverse, reddish spots; the breast is white, marked with oblong spots of black; the thighs and vent-feathers are a pale orange; the middle feathers of the tail are entirely of a deep dove-colour, the others being barred on their inner webs with ferruginous, and tipped with a dirty white; and the legs and feet are yellow.

The female is considerably larger than the male; her breast is marked with higher-coloured spots; and her legs are greenish. She builds in high trees, in various parts of England; but migrates in October.

HOG. In the Linnæan system the Hog forms a distinct genus of animals of the order of *belluæ* and class of *mammalia*; the characters of which are these: the upper fore-teeth are four in number, and convergent; those of the lower jaw are six, and prominent; the canine teeth of the upper jaw are two, and short; those of the under jaw are single and protruded; and the snout is truncated, prominent, and moveable. The Common Hog, the Guinea Hog, the Mexican Musk Hog or Tagaar, the Capybara, and the Babyroussa, belong to this genus.

Hog, Common. The Common Hog is so well known, that any description of it may perhaps seem unnecessary; and yet few are acquainted with all the qualities and habitudes of that creature which inquisitive naturalists have remarked.

In animals of the Hog kind, those distinctions seem to unite by which others are separated. They resemble the horse kind in the length of their heads, in having only a single stomach, and in the number of their teeth, which amount to forty-four. With respect to their cloven hoofs, and the position of their intestines, they resemble the cow kind; and in their appetite for flesh, their numerous progeny, and chewing their cud, they resemble those of the claw-footed kind.

Thus these animals may be considered as of a middle nature between the rapacious and the peaceful kinds, nevertheless partaking somewhat of the nature of both. Like the rapacious tribes, their hoofs, on anatomical inspection, appear to be fitted with bones, after the manner of beasts of prey; and the number of their teats serves to increase the similitude. Like the peaceful kinds, in a natural state, they live on vegetables, and seldom seek for animal food, except when urged by necessity; and, though furnished with power sufficient to annoy the boldest animals of the forest, they are equally inoffensive to all.

The Hog is apparently the most filthy and impure of all quadrupeds: however, it may be proper to reflect, that filthiness is an idea merely relative to ourselves; and that from our own sensations we are apt to form a partial judgment, and overlook that wise decree of Providence which adapts every part of creation to its respective inhabitants. The Hog, indeed, seems actuated with

an insatiable desire of eating, and therefore his stomach is capacious; but though he devours the most nauseous offals, we are not therefore to conclude that he is insensible to the difference of food; for whenever he meets with variety, he is known to possess as distinguishing a palate as other animals.

This animal has not improperly been compared to the miser, who during his life-time is useless and rapacious; but, through the effects of his sordidness, becomes of public benefit at his death. The Hog, in his life-time, does not render the least service to mankind; his uncommon brutality sometimes urges him even to devour his own offspring. All other domestic creatures shew some degree of respect for mankind, and even a species of tenderness for children; but this animal will devour infants when prompted by hunger, and seems incapable either of fidelity or affection.

The Hog appears to be more imperfectly formed than any other animals around us which we have rendered domestic. It is less active in its motions, and less capable of knowing what to pursue and what to avoid. The thickness of its hide, together with the coarseness of its hair, render it almost insensible to blows and rough usage. Being naturally stupid, drowsy, and inactive, when undisturbed it will sleep half its time: but it is frequently roused by the calls of hunger; and when those demands are satisfied, it again retires to rest. Its whole life seems to be one continued round of gluttony and sleep; and, were its cravings sufficiently gratified, it would soon become unable to support itself on its legs: nevertheless, it would still continue feeding, lying, or kneeling; a helpless instance of indulged sensuality. The only time this creature seems to have passions of a more active nature, is when it is excited by venery, or when the wind blows with some degree of vehemence; on this last occasion, it is so agitated, as to run violently towards its sty, screaming horribly, as if under the most dreadful apprehensions. It appears also to foresee the approach of bad weather, in carrying straw to its sty in its mouth, preparing a bed, and hiding itself from the impending storm. Nor is it less afflicted on hearing any of its kind in distress; for it seems to sympathize in their sufferings, and to offer its unavailing assistance.

Though the Hog is one of the most unpromising animals in nature for human industry to exert itself on, it has been known to profit so considerably by education, as to perform acts which its apparent stupidity might well have rendered incredible; such as telling the hour of the day by the bare inspection of a watch; selecting such letters as compose the largest and most unusual names; and producing the figures corresponding with the number of persons in a room. Such are the astonishing effects of cultivation, when carried on with assiduity and perseverance.

Most of the diseases of this animal arise from intemperance; measles, imposthumes, and scrophulous swellings, being reckoned among the number: and it is actually believed by some, that its propensity to wallowing in the mire is a natural instinct for the destruction of a species of lice or insects which prey on it. If permitted to live, it will arrive at the age of eighteen or twenty years; and the female will produce till that of fifteen.

As Hogs bring forth from ten to twenty at a litter, they would soon become very numerous, were they

they not diminished for the support of man. Their flesh, says Linnæus, is wholesome food for persons of athletic constitutions, or those who habituate themselves to much exercise; but improper for such as lead sedentary lives: it is, however, of general use, and furnishes innumerable materials for epicurism, among which brawn is a kind peculiar to England. In reality, it is an article of great importance to a naval and commercial nation, as it takes salt better than any other flesh, and consequently is capable of being longer preserved. The lard, or fat, is extremely beneficial in medicine, being an ingredient in various sorts of plaisters; and the bristles are formed into brushes of various sorts.

The arts of fattening, rearing, guarding, and managing Hogs, more properly fall under the cognizance of the agriculturist than the naturalist; they constitute a branch of domestic œconomy, which, properly treated, may be extended to a great length: we shall therefore only observe, that where art begins, the history of nature ought to end.

The Hog is found in a domestic state in all parts of the world, except within the frigid zones, and in Kamtschatka. It is also found wild in most parts of Europe, except the British Isles, (where the breed is now extinct) and the countries north of the Baltic. They are very numerous in several parts of the East, in Africa, and America; but, both in a state of nature and subjection, they are unknown in climates excessively severe.

HOG, CHINESE; the *Sus Chinenſis* of Linnæus. The belly of this animal reaches almost to the ground; the legs are short; the tail depends to the heels; and the body is usually bare, a peculiarity commonly observed in the Asiatic swine.

Hogs of this species are widely disseminated over the Oriental Isles. They are found wild in vast numbers in New Guinea, and the circumjacent isles: they also inhabit Gilolo; and eagerly resort to those places where sago-trees have lately been cut down, in order to feed on the remaining pith, which soon renders them very fat.

It appears highly probable that this breed of Hogs was carried from New Guinea to the various newly-discovered islands in the south Pacific. They were first introduced into the New Hebrides, and thence into the Friendly Isles, the Society, and the Marquesas: but all the islands to the eastward of New Guinea, and even New Caledonia, a little to the southward, are destitute of them.

The flesh of these animals, when fed with plantanes, bread-fruit, and yams, is very delicious; but it is often too gross for an European stomach. Our navigators, however, speak in high terms of the many excellent repasts they derived from these Hogs. In almost all the islands recently discovered, they are sacrificed to the subordinate deities of the country; roasted whole, placed on their altars, and there left to decay.

HOG, GUINEA; the *Sus Porcus* of Linnæus. This species is smaller than the common kind, though of the same figure: the colour is reddish; the ears are long and sharp-pointed; and the tail, which is destitute of hair, depends to the heels. It has no bristles; but about the neck and lower part of the back the hair is longer than on other parts of the body. This creature is a domestic variety of the common kind, and its flesh is said to be excellent.

The Siam Hog, described by Buffon under the

appellation of Cochon de Siam, is another variety differing very little from the preceding.

HOG, ÆTHIOPIAN; the *Sus Æthiopicus* of Linnæus. The body of this animal is longer, and the legs are shorter, than in the common sow. It has small tusks in the lower jaw, and very large ones in the upper. Those of old boars bend up towards the forehead in a semicircular form. It has no fore-teeth; the head is large and broad; the nose is broad, depressed, and corneous; and the mouth is small. The colour of the skin is dusky; and the bristles are disposed in little bunches of about five each: these are longest on the beginning of the back and between the ears. The ears are large, sharp-pointed, and internally lined with long whitish hairs; and the tail, which is small and flat, is covered with hairs disposed in tufts or bunches, and extends only to the thighs.

These animals inhabit the hottest parts of Africa, from Sierra Leona to Congo; and they are also found in the Isle of Madagascar. It is likewise probable that the Hogs of Mindanao are of this breed, if the description of Dampier may be relied on. They live under ground; and burrow as expeditiously as the mole, forming almost instantly large holes in the ground by means of their callous snouts. They are very swift and fierce; and cannot be brought to propagate either with the common or Chinese sow. One of the Æthiopian Hogs, at the Prince of Orange's Menagery near the Hague, was turned out to a Chinese sow, which it killed; and afterwards to a common sow, which it treated very severely. Indeed, its savage nature at last proved fatal to its keeper; for he died of a wound in one of his legs which this animal, in its wrath, had inflicted.

HOG, CAPE VERD; the *Sangler de Cape Verd* of Buffon. This species has a long head; a slender nose; and ears upright, pointed, and tufted with very long bristles. It has two cutting-teeth in the upper, and six in the lower jaw; six grinding-teeth on each side in both; and twenty-four in all. The tusks are large, and of an ivory hardness; and those of the upper jaw are thick, and obliquely truncated. The whole body is covered with very long fine bristles, especially about the belly, shoulders, and thighs, where they grow to a great length; and the tail, which is slender, and terminates in a large tuft, reaches only to the first joint of the leg.

This animal, which is found from the Cape of Good Hope to Cape Verd in Africa, grows to a very considerable size; and seems to be the same with the creature seen by Adanson, who calls it a boar of enormous size peculiar to Africa.

HOG, MEXICAN; the *Sus Tajacu* of Linnæus. This animal, called also the Peccary, in some degree resembles a small Hog of the common kind; but its body is less bulky; its legs are smaller; its bristles are thicker and stronger, and more like those of a hedge-hog than the common kind; and, instead of a tail, it is only furnished with a fleshy protuberance, which does not cover its posteriors. From the shoulders to the breast there is a band of white; and on the back a lump resembling the navel in other animals, from which oozes a very foetid liquor.

This creature, which is a native of the hottest parts of South America, and some of the Antilles, lives in forests, but chiefly on the mountains: it is less corpulent than the common sow, and neither delights in mire nor marshy places.

The Mexican Hogs assemble in great droves,
and

and defend themselves from beasts of prey with conduct and resolution. Their most formidable enemy is the jaguar, or American leopard; and the body of that animal is frequently found with several of these Hogs, slain in combat. Dogs seldom possess courage enough to attack them; and, if wounded, they will even turn on the human species, and contend to the last. They feed on fruits, vegetables, roots, and reptiles. Their flesh is said to be tolerable food; but, as soon as they are killed, their dorsal glands must be extracted, otherwise their flesh immediately becomes tainted; and when this operation is deferred for only half an hour, the infection communicated to their flesh proves so very strong, that it is not eatable, nor even supportable.

These animals, though naturally wild, are capable of being tamed; but they never shew any signs of docility or attachment. They are remarkably fierce in defence of their young; they surround the plunderer, attack him with inconceivable fury, and frequently make his life pay the forfeit of his temerity. Like the common Hogs, they are very prolific; and the young follow their dams till they arrive at perfection.

HOG, INDIAN; the *Sus Duobus Dentibus Caninis Fronti Innatis* of Linnæus. This animal has some weak bristles along the back; but the rest of the body is covered with fine short wool, resembling that of the lamb: the tail ends in a tuft, and is often twisted; the body is plump and fixed; the head is oblong and narrow; and the snout is adapted for digging the earth. The ears are small, erect, and sharp-pointed; and the eyes are disproportionably minute. There are four cutting-teeth in the upper, and six in the lower jaw, with six grinders to each jaw; there are also two tusks in the lower jaw, pointing towards the eyes, and projecting almost eight inches out of their sockets. From two sockets on the external part of the upper jaw proceed two other teeth, twelve inches long, and bending like horns, the ends of which almost touch the forehead.

This curious creature inhabits Buero, a small island near Amboyna: it is also found in Celebes, but neither on the continent of Asia nor Africa. It is sometimes domesticated in the Indian islands. In a wild state, it is a gregarious animal, feeding on vegetables, but never ravaging gardens like other swine. When pursued and driven to extremities, it will plunge into the sea, and swim to another island. Though furnished with very formidable tusks, they are totally useless in combat; and are only employed by the animal in suspending it from the bough of some tree. The feet resemble those of the European Hog; and the legs are long and slender.

HOG FISH. A fresh-water fish about a span long: the colour of the scales inclines to a blackish green; the fins and tail are of the same colour; and the eyes are yellow. It is a native of the East Indies; and its flesh is plump, firm, and agreeable.

HOG, SEA. This fish is about fifteen inches in length, and seven in breadth. The skin is extremely thick; and the scales are so close and hard, that they are almost impenetrable by any instrument; but, when boiled, they fall off with ease, and the skin becomes very soft. The flesh is white, tender, and delicious. The mouth is small, but armed with two rows of shining teeth; the back is brown, and furnished with a sharp fin, which the fish can erect at pleasure; and opposite

to this is another on the belly. The sides are white mixed with yellow, which gradually turns to an ash-colour on the back; and the belly is of a shining silvery whiteness.

HOG LOUSE. This insect is about half an inch in length, and a quarter in breadth. The colour is a livid black, especially when found on dunghills; but such as frequent dry situations are cinereous. It has fourteen feet, each having a single joint; and also two short feelers. The body is of an oval shape; but, when touched, the animal rolls itself up into a kind of ball. It is often found among rotten timber, and on decayed trees; and in winter takes up its lodging in the chinks of walls. The female lays a considerable number of white shining eggs, which, when first hatched, produce a whitish sort of worm, apparently without life or motion.

This insect is esteemed very efficacious in medicine: it is prescribed as diuretic and aperient; and is often given with success for dimness of sight.

HOITLALLOTL. An American bird described by Nieremberg, and by him called *Avis Longa*. It runs with extraordinary swiftness. The body and tail are uncommonly long; the beak is also very long, black above, and grey beneath; the whole body is of a yellowish white colour, except that the shoulders are variegated with black and white spots, and that the rump is of a blackish yellow hue; and the tail, which is green, possesses all the splendor and vivid beauty of the peacock's. The flesh is almost unfit for food.

HOITZITZIL. An appellation given by some naturalists to the guainumbi, or humming-bird, the smallest of the feathered tribe.

HOITZITZILLIN. An American bird described by Nieremberg; the beauty of whose feathers is so much esteemed among the Indians, that it is not lawful to kill it, but only to strip it of its plumage, and then turn it loose. Hernander informs us, that the natives allure these beautiful birds to lime-twigs placed for catching them, by strewing boiled Indian wheat around. They fly in large flocks, nestle together on trees, and make a confused hissing noise.

HOLIBUT; the *Pleuronectes Hippoglossus* of Linnæus. This is the largest fish of the flounder genus: some have been caught in the British seas weighing from two to three hundred pounds; and in those of Newfoundland, Greenland, and Iceland, much larger are found. Indeed, they constitute no inconsiderable part of the food of the Greenlanders; being cut into large slips, and dried in the sun.

These fish are commonly exposed to sale in the London markets, cut into large pieces. Their flesh is extremely coarse, except that part which adheres to the lateral fins; and it is fat and delicious, but surfeiting. With respect to its length, the Holibut is the narrowest of any of the genus, except the sole; and is perfectly smooth, and destitute of spines. The upper part is dusky, and the under of a pure white colour. It is the most voracious of all flat fish; and has been known even to swallow the lead weight at the end of a line with which the seamen were founding.

HOLOSTEUM. An appellation by which Bellonius distinguishes the ostracion, a fish caught in the River Nile, covered with a hard shelly skin, and approaching in its shape to a pentangular figure.

HOLOTHURIA. A genus of sea-worms of the

the order of mollusca in the Linnæan system. Their distinguishing characters are, a pliable, naked, gibbous body, terminated by the anus at one extremity, and furnished at the other with many tentacula encompassing the mouth. Linnæus enumerates nine species.

HOODED SERPENT; the *Serpens Indicus Coronatus*. This reptile is so called from an excrescence resembling a hood or cap on the top of its head. It is generally about a yard long, and three-quarters of an inch thick; and the skin is chiefly of a fine vivid yellow colour. The poison of this Serpent is extremely subtle; and is by some reckoned the strongest in nature.

HOOPER. An appellation given by some authors to the *cygnus ferus*, or wild swan.

HOOPOE; *Upupa*. This makes a distinct genus of birds of the order of *picæ* in the Linnæan system; the characteristics of which are these: the beak is bent, convex, subcompressed, and in some degree obtuse; the tongue is obtuse, triangular, and very short; and the feet are ambulatory. Linnæus has classed three species under this genus; the *Upupa Epops*, the *Promerops*, and the Bird of Paradise.

HOOPOE, COMMON; the *Upupa Epops*. This bird occasionally visits the British islands: it is also found in various parts of Europe and Africa, and even as remote as Ceylon. The Turks call it *Tir Chaous*, or the messenger-bird; in Sweden it's appearance is vulgarly considered as a presage of war; and it was formerly deemed in our country a forerunner of some calamity.

The usual weight of the Hoopoe is about three ounces: the beak is black, slender, and slightly hooked; the head is adorned with a most beautiful and elegant crest, rising two fingers high, and composed of two series of feathers, which the bird raises and depresses at pleasure: the tips of these feathers are ornamented with black and white; and the rest is of a pale orange-colour. The neck is of a pale reddish brown hue; the breast and belly are white, variegated with longitudinal streaks, which disappear in the middle as the bird grows older; the tail is black, and composed of ten feathers, having a white spot in it of a crescent shape, the horns pointing towards its extremity; the legs are short and black; and the wings, which are transversely streaked with white, when folded, do not reach to the end of the tail.

The Hoopoe feeds on various insects, berries, and vegetables; breeds in hollow trees; and lays two ash-coloured eggs. According to Linnæus, it receives its name from its note, which has a similar sound to the word: but perhaps it may be derived from the French *Huppé*, Crested; a peculiarity sufficient to distinguish this beautiful bird from all others.

HORN-COOT. A name given by fowlers to the great Horn-owl.

HORN-FISH. An English appellation for the fish more usually known by that of the gar. It is accounted by some authors a species of the *acus*, or tobacco-pipe fish; but this opinion seems to have originated solely from a similarity of shape. It is properly a species of pike or esox.

HORNED FISH. The figure of this fish somewhat approaches to an oblong square, the back being the narrowest, and the belly the widest part. The body is entirely covered with a thick, strong, horny case, fixed, and unpliant; the exterior surface is divided by lines into sexangular por-

tions, with a kind of afterfin in the centre of each and the whole body appears of a dusky colour, except the irides, which are orange-coloured. The mouth is small, and the teeth are long and slender; from above the eyes project two horns; and from the plane of the belly spring two more, tending backwards. A fin rises on the hinder part of the back, and another on the belly below the vent; and the tail also hath a pretty long fin.

This singular fish is a native of the Oriental seas; and has sometimes been caught on the coasts of Madagascar.

HORNET. This insect is of the wasp kind, but twice as large. It is furnished with four wings, the first pair of which is by far the largest; and with these the creature flies with great velocity. The head is oblong, and yellowish; the eyes are prominent and semilunate; and between them there are two falciform antennæ. The feet or legs are six in number; the shoulders are of a dark brown and reddish chestnut-colour; the body is united to the shoulders by a sort of thread; the middle of the fore-part is of a dark brown hue, marked with a saffron belt; and the hinder part is wholly of a saffron colour, except that it is variegated with eight brown spots. Near the belly there are four black spots on each side; and the tail is armed with a strong venomous sting.

These insects, when flying, are more noisy than wasps, as well as much more mischievous and dangerous. It is said that a few of them are capable of killing either a man or a horse; and indeed a summer rarely passes without affording some fatal instances of their fury on such as rashly disturb them in their retreats. They make their appearance generally about the commencement of the dog-days, during which they are peculiarly malignant. Like bees, they are said to have a supreme head; they live in societies, and appear subject to some regulating power. They are seldom known to exist above two years. During winter they lie hid, like other insects, sometimes in the trunks of hollow trees, and sometimes at their roots: there they make their nests, and construct their cells with the mouths always downward, which in a great measure preserves them from the rain. The cells are all hexangular, and externally seem composed of films like those of birch-bark. They pursue other winged insects; and, according to some naturalists, destroy small birds by stinging them in their heads, after which they find means to carry them to their nests. However, they are less provident than the more useful congenerous insects the bees, in laying up a sufficient stock of provisions for the winter; and, in consequence of this neglect, many of them die through want; which circumstance providentially keeps the breed from becoming very numerous.

HORNET-FLY. This insect so greatly resembles the hornet, that an incurious observer could scarcely distinguish them. It has two large wings; the principal colour of the body is yellow, with two large transverse black lines; the corselet is black; and the head is yellow.

At a proper season, these flies lay a large number of oblong white eggs; which afterwards hatch into large and long worms, that feed on the worms and nymphs of the humble bee.

HORSE. In the Linnæan system, the Horse forms a distinct genus of animals of the order of *belluæ*; the characters of which are these: the fore-teeth are six in each jaw, the upper being erect

erect and parallel, and the lower more prominent; the canine teeth are single, placed at a distance from the rest, and not much longer; and the hoof is whole and undivided. According to these definitions, the equus caballus or Horse, the ass, the wild ass, the mule, and the zebra, are included in the same genus.

The Horse appears to be the most beautiful of all quadrupeds: the noble extent of his form, the glossy smoothness of his skin, the graceful ease of his motions, his strength, and, above all, his activity and utility, render him one of the principal objects of human curiosity and care; and teach us to regard him as an animal in whose welfare we are essentially interested. He is the most generous, docile, spirited, and yet obedient, of all creatures; adapted for every purpose, the chase, the draught, and the race; and produced in almost every part of the world, with as little variation as can well be expected. We shall therefore give one general description of this noble quadruped, remarking his varieties as we proceed, and explaining his multifarious qualities.

To form an adequate idea of this stately animal in his native simplicity, we must not look for him in the pastures or the stables, to which he has been confined by man, but in those wild and extensive plains where he has been originally produced, where he ranges without controul, and riots in all the variety of luxurious nature. In this happy state of independence, he disdains the assistance of man, which only tends to servitude. In those boundless tracts where he expatiates at liberty, he seems not to be incommoded with the inconveniences to which he is obnoxious in Europe. In the happier climates of Africa, the verdure of the fields supplies his wants; and the genial warmth of the sky is well adapted to his constitution, which naturally seems formed for heat. His enemies are few; for none but the larger kinds of animals will venture to attack him, any one of which he is singly able to overcome: but he seeks his safety in society; and, in those countries, it is not unusual to see five or six hundred Horses feeding together.

As they are naturally mild in their dispositions, they are satisfied with remaining entirely on the defensive. The pastures supply them abundantly with food; and all their precautions are merely for their security, in case of a surprisal. Whenever they sleep in the forests, one of their number performs the office of a centinel, to warn his associates of approaching danger; and this commission they execute by turns. If, while they are feeding by day, any man approaches them, their centinel boldly advances towards him, as if to examine his strength, or to intimidate him from proceeding. If the person advances within pistol-shot, the centinel alarms his fellows by a loud kind of snorting; on which signal they all fly off with the rapidity of the wind, their faithful centinel always bringing up the rear.

Though the Horse is found in almost all countries, it is evident that the colder climates do not agree with his constitution; for in them his form is altered, and he is found not only diminutive, but ill-shaped. We have the testimony of the ancients, that there were wild Horses once in Europe: at present, however, they are totally brought under subjection; and even those in America are of Spanish original, which being sent thither on the first discovery of the country, have since become wild, and overspread all the south of that vast continent,

almost to the Straits of Magellan. These are in general a small breed, of about fourteen hands high: their jaws are thick; their joints are clumsy; and their ears and necks are long. They are tamed with facility; Horses being naturally gentle, complying creatures, and resisting rather from fear than obstinacy. They are caught by means of a kind of nooses; and then held fast by their legs, and tied to trees, where they are left for the space of two days without either food or water. By that time they begin to grow faint, and consequently become manageable; and, in a few weeks, every trace of their original wildness is lost. If by any accident they are once more set at liberty, they never become wild again, but know the voices of their masters, and obey their calls.

American Horses, however, cannot properly be ranked among the wild races, being originally bred from such as were tame. We must carry our researches into the old world for this animal, if desirous of seeing him in a state of nature; in the extensive deserts of Africa, in Arabia, and those vast countries that separate the more southern nations from Tartary. Large droves of these animals are seen wild among the Tartars: they are of a small breed, extremely swift, and difficult to be caught. As their societies are select, they will not admit of any strange animals among them, though of their own kind; and whenever they perceive a tame Horse attempting to associate with them, they instantly gather round him, and oblige him to provide for his safety by flight. To the north of China, there are also vast numbers of wild Horses; but they are of a weak and timid breed, small in stature, and destitute of spirit.

About the Cape of Good Hope there are considerable numbers of Horses in a state of nature; but they are small, vicious, and untractable. They are likewise found wild in various other parts of Africa; but the wretched inhabitants of that country are either ignorant of their uses, or unacquainted with the necessary arts for taming them. It is usual for the negroes, who are transported from thence to America, when they first see a Horse, to express both terror and surprize. In some parts of Africa, where this creature runs wild, the natives seem to consider him rather as a dainty for food than a useful creature, capable of assisting their operations in peace and war; and whenever the Angolans or Caffrarians catch a Horse, it is only with an intent to feast on his flesh.

But, of all the wild Horses in the world, Arabia produces the most beautiful breed, the most generous, swift, and persevering. Though not very numerous, they are nevertheless found in the deserts of that country, and the natives employ every stratagem to secure them. They are extremely active, but of a smaller size than those which are bred up tame: their colour is brown; their manes and tails are very short, and the hair is black and tufted. No adequate ideas can be formed of their fleetness; and the only method of catching them is by traps concealed in the sand, which entangling their feet, the hunters at length come up, and either kill or carry them off alive. If the Horse be young and tender, the Arabians consider him as a peculiar delicacy; but if, from his shape and vigour, he promises to be serviceable in his more noble capacity, they tame him by fatigue and hunger, and he soon becomes an useful domestic animal. The natives usually try the swiftness of their Horses by hunting the ostrich,

they being the only animals whose speed is comparable to that of this bird. The instant the ostrich perceives itself aimed at, it makes for the mountains; while the horseman pursues it with all possible expedition, and endeavours to cut off its retreat. This being effected, the chase is continued along the plain; while the ostrich makes use both of its legs and wings to accelerate its progress. However, the Horse is frequently able to outrun it; and in that case the poor bird is obliged to have recourse to art for eluding the hunter, by making use of frequent gyrations: at last, finding all its efforts ineffectual, it hides its head in the sand, or wherever it can, and patiently suffers itself to be taken. If the Horse, in a trial of this kind, shews a sufficient degree of fleetness and strength, his price becomes proportionably great; and some that have acquitted themselves with credit, have been valued at a thousand guineas.

At present, however, the Horses thus caught and trained are but few: the value of Arabian Horses in every part of the world has thinned the deserts of the wild breed; and there are very few to be found in those countries, except such as are tame. Historians inform us, that the Arabians first began the management of Horses in the time of Sheque Ismael. Before that period, these animals wandered wild along the face of the country, neglected, and useless; but the natives then first tamed their fierceness, and improved their beauty: and at present they possess a race of the most elegant Horses in the world, with which they drive a considerable trade, and furnish the stables of princes at immense prices.

There is scarce an Arabian, however poor in other respects, who is not furnished with his Horse. In general, these people make use of mares in their ordinary excursions; being taught by experience, that they endure hunger, thirst, and fatigue, better than Horses: they are also less vicious, of a gentler nature, and more harmless among themselves. The Turks, on the contrary, are not fond of mares; and the Arabs sell them such Horses as they do not think proper to keep for stallions.

The Arabians preserve the pedigrees of their Horses with great care, and trace them for several ages. They know their alliances, and their entire genealogy. They distinguish the races by different names, and divide them into three classes: the first is that of the nobles, or the ancient breed, unadulterated on either side; the second is that of the Horses of the ancient race, but adulterated; and the third is that of the common and inferior kind. The last are sold at a very moderate price; but those of the first class, and even the second, extremely dear.

Taught by long experience, the Arabians know the race of a Horse by his appearance; and can tell the name, surname, colour, and marks, properly belonging to each. When a mare is covered, the owner receives a written attestation of the fact: and when she has produced her foal, new witnesses are called; and a new attestation is signed, in which are described the marks of the foal, and the day is entered when it was brought forth. These testimonies increase the value of the Horse, and are consigned to the person who purchases him. The most ordinary mare of the noble breed sells for five hundred crowns; many are valued at a thousand; and some of the very finest kinds are estimated at no less a sum than fifteen hundred pounds sterling.

The Arabians having no other habitation but a tent, that also serves them for a stable; so that the husband, the wife, the children, the mare, and the foal, live indiscriminately together: the little children frequently lie on the body, or on the neck, of the mare; whilst she seems fond of their caresses, and never offers to hurt them. The Arabians never beat their horses, but treat them with great gentleness; address them as if rational beings; and never attempt to increase their speed by the whip or spur, except in cases of necessity: however, when either of these is applied, they set off with amazing fleetness, leaping over every obstacle with as much agility as a buck; and should their riders happen to be dismounted, they stand still in the midst of their most rapid career.

The Arabian Horses are of a middle size, easy in their motions, and rather inclined to leanness than obesity. They are regularly dressed every morning and evening; and with so much care, that the smallest asperities or inequalities are not to be seen on their skins. During the day, they are kept from food, receiving only a little water; but about sun-set, bags are suspended from their heads, each containing nearly half a bushel of clean barley: this they eat in the course of the night, and the bags are removed again in the morning. In the beginning of March, when the grass is of a sufficient height, they are turned out to pasture; and about this time likewise the mares are consigned to stallions. When the spring is at an end, they are taken from pasture, and subsist the remainder of the year on barley, except now and then a little straw. At the age of two years, or two and a half at most, they are accustomed to the menage; and are then always kept ready saddled at the doors of the tents from morning till night, in order to be prepared against any surprize.

Sensible of the great advantages derived from their Horses, the Arabians have a law which prohibits the exportation of their mares; and those stallions which are imported into England, are generally purchased on the eastern shores of Africa, and come round by the Cape of Good Hope. They are commonly about fourteen hands and a half high; their motions are more graceful than those of our Horses; and they are also superior in fleetness; but their speed is irregular, and they are incapable of bearing long fatigue: nevertheless, they are justly considered as the finest breed in the world, and as that from which all others have derived their most valuable qualifications. It is even probable that Horses had their origin first in Arabia; for there, instead of crossing the breed, they are studious to preserve it entire. In other countries it is necessary to change the races, otherwise the Horses would soon degenerate; but, in Arabia, the same blood has passed down through a long succession, without any diminution either of beauty or strength.

The Arabian breed has spread over all Barbary, and has even extended itself across that vast continent to the western shores of Africa. It has also been diffused into Egypt; and even into Persia, where, according to Paulus Jovius, there are studs of ten thousand white mares all together, which are very fleet, and their hoofs so hard, as not to stand in need of shoeing. In these countries, Horses generally receive the same treatment as in Arabia, except that they are littered in bags of their own dung, dried in the sun, and then pulverized. When this dung, which is spread under the Horse

about

about five inches thick, is moistened, it is again dried, and spread as before. These Horses, which strongly resemble each other, are usually of a slender make; their legs are fine, bony, and wide set; their manes are thin; their chests are fine; their heads are beautiful; their ears are small and pointed; their shoulders are thin; their sides are elegantly rounded; their crops are somewhat longish; and their tails are generally set high. In Numidia, however, the race of Horses is much degenerated; the natives having been discouraged from keeping up the breed by the Turks, who seize on all the good Horses, without making their owners the least compensation. The Tingitanians and Egyptians are now famed for rearing the finest Horses, both with respect to beauty and size. The smallest of the Egyptian breed are about sixteen hands high; and their symmetry is the most exact in nature.

The Spanish genetie is generally ranked next to the barb. These Horses are small, but extremely beautiful and fleet. Their heads are pretty large; their manes are thick; their ears are long, but well pointed; their eyes are animated and lively; their shoulders are thickish; their chests are full and large; their croups are round and large; their legs are beautiful, and without hair; their pasterns are a little of the longest; and their hoofs are somewhat too high: nevertheless, they move with great ease, and carry themselves very gracefully. They are usually of a black, or dark bay colour, without any white marks; and they are all branded on their buttocks with their owners names. Those of the province of Andalusia are esteemed the best: they are said to possess courage, obedience, grace, and spirit, in a very superior degree; and have therefore been preferred, as War-Horses, to those of any other country.

The Italian Horses are now less beautiful than formerly, the breed having been greatly neglected. Nevertheless, there are still some beautiful Horses in that country, particularly among the Neapolitans, who use them chiefly for draught. In general, they have large heads and thick necks; are restive, and consequently ungovernable: these faults, however, are recompensed by the largeness of their size, their spirit, and their graceful, easy paces. They have a particular aptitude for prancing, and are excellent for shew.

The Horses of Denmark are of a large, strong make, and therefore preferable to all others for the draught. Some of them are well shaped; but in general they have thick necks, heavy shoulders, long hollow backs, and narrow croups; however, they all move with ease, and are found to be well adapted either for parade or war. They possess all manner of colours, and often very whimsical ones; some of them being mottled like the leopard, and others streaked like the tiger.

The German Horses, though originally sprung from Arabian and Barbary stocks, are nevertheless small and ill-shaped; their hoofs are tender; and they are weak, and apt to be jaded. The Hungarian Horses, on the contrary, are excellent both for the draught and saddle; and, when applied to the purposes of war, their nostrils are usually slit, designedly, as we are informed, to prevent their neighing.

No Horses are preferable to those of the Dutch for the draught; and for this purpose they are esteemed over all Europe. The province of Friesland produces the best. The Flemish Horses are

much inferior to the former, having commonly large heads, flat feet, and swollen legs.

France produces a very motley breed of Horses, but few that are valuable. The best of that country come from Limosin: these bear a strong resemblance to barbs; and, like them, are excellent for the chace, though a long time in arriving at perfection; while young, they must be conducted with great care, and are not backed till eight years of age. Normandy also furnishes some good Horses, though they are better adapted for war than the chace. French Horses are usually heavy-shouldered; a fault opposite to that of the barbs, which are commonly too thin in their shoulders, and consequently apt to be shoulder-slipt.

By great assiduity, and unceasing application, the English Horses are now become superior to those of any other part of the world, for size, strength, beauty, and fleetness. In this island, indeed, the breed of these creatures is as mixed as that of its inhabitants. From the frequent introduction of foreign Horses, we can boast of a greater variety than any other country: few other kingdoms produce more than one kind; but ours, by a judicious mixture of the several species, by the happy diversity of our soil, and by our superior skill in management, may triumph over the rest of Europe in having brought this noble animal to the highest degree of perfection. The English Horse is at present known and allowed to excel the Arabian both in size and swiftness, to be more durable than the barb, and more hardy than the Persian. To such amazing fleetness have some of these animals arrived, that they have run a mile in little more than a minute, and frequently performed a race of four miles in less than seven minutes. However, this superior degree of swiftness is applicable only to some particular Horses; for the generality fall considerably short of it, notwithstanding the easy victory they gain over other European couriers.

These fleet Horses derive their origin from Arabia, the seat of the purest and most generous breeds. The hunter is a happy combination of the former with others of superior strength, but inferior in swiftness and lineage: this, in fact, is a necessary union; for the fatigues of the chace require the spirit of the one, as well as the vigour of the other, to support it.

No other country can produce a breed of Horses equal in strength and size to those of England which are destined for the draught, or the combined strength and activity of those that compose our cavalry. In the metropolis, there are instances of a single Horse being capable of drawing, for a small space, three tons weight; but which could easily draw half that weight for a continuance. It has been usual for one of the Yorkshire Pack-Horses to carry a burden of four hundred and twenty pounds weight over the highest hills of the north, as well as along the most level roads. Some of our Mill-Horses will carry, at one load, thirteen measures, which, at a moderate computation of seventy pounds each, will amount to upwards of nine hundred pounds. However, when it is considered that the animals are habituated to support these amazing weights by degrees, and that the spaces they travel are but short, the task will appear less surprizing.

The increase of population, the extension of manufactures, together with the neglect of internal navigation, have occasioned the number of our
Horses

Horses to be multiplied; an excess of wealth has increased the number of carriages, and added to the necessity of an extraordinary culture of these quadrupeds; and the reputation they have acquired on the continent has also made them a branch of commerce, and proved an additional stimulus to their propagation.

The French, and some other nations, in their description of our Horses, though they admit that they are strong and spirited, find fault with the awkwardness of their motions, and their want of grace and elegance. But while they venture those strictures, they do not reflect, that this seeming want of grace is entirely the result of our manner of breaking these animals; and that the defect is not natural, but adventitious. Speed is a quality principally consulted by us in the motions of this animal; but the French, and other continental nations, pay more attention to parade and spirit. We always throw our Horses forward, while they put them on their haunches; we teach them an easy method of going, so as to cover a great deal of ground: on the contrary, they throw them back; which circumstance, while it contributes to shew, unquestionably lessens utility. From our manner of breaking the Horse, it must be acknowledged that the animal is sometimes apt to fall forward; while the French managed Horse never falls forward, but generally on one side. However, it would certainly be no difficult task to give our Horses all that grace which foreigners so much admire; though at the same time it would render them less swift and durable.

But whatever contempt foreigners might formerly have expressed for our Horses, they are now sufficiently convinced of their error, and have accordingly altered their opinion. English hunters are now considered as the most useful Horses in the world: numbers of our geldings are exported to the continent, and sold at very high prices, notwithstanding a law prohibiting their exportation, which, with some variation, has been in force ever since the time of King Athelstan.

Roger de Belegme, created Earl of Shrewsbury by William the Conqueror, is the first who is recorded to have attempted improving our native breed of Horses. This nobleman introduced Spanish stallions into his estate at Powisland, in Wales; from which circumstance that part of the country was for many ages after famous for a swift and generous breed of Horses. However, at that early period, strength and fleetness were more regarded than beauty; the shape of the Horses, during the time of action, being entirely hid by coats of armour, with which the knights invested them, either for ornament or defence.

In the reign of King Stephen, the number of Horses, in London alone, is said to have amounted to twenty thousand: but, in the reign of Queen Elizabeth, the whole kingdom could not supply two thousand to form a body of cavalry. At present, the former numbers seem to be revived, and even augmented; and, in time of war, thirteen thousand horsemen have been fitted out, without any sensible decrease of the breed.

We are informed that there are very good Horses in the islands of the Archipelago. Those of Crete were in high estimation among the ancients, for their strength and swiftness: at present, however, they are but little used even there, the country being rocky, mountainous, and irregular.

The original Horses of Morocco are much in-

ferior in size to the Arabian breed, but they are very fleet and vigorous. Turkey produces Horses of almost every race; Arabians, Tartars, Hungarians, and the aborigines of the country. The latter, which are extremely beautiful and elegant, possess a great deal of fire, swiftness, and docility; but they are incapable of bearing long-continued fatigue.

The Persian Horses are, in general, the most beautiful and valuable in all the East. The pastures in the plains of Media, Persepolis, Ardebil, and Derbent, are well adapted for rearing them; and their propagation was formerly encouraged by the government. They are generally of a middle size; and though some are found of the smallest stature, that circumstance does by no means either impair their beauty or their strength. Nevertheless, many of them are as large as the English Saddle-Horses: they have all thin heads, fine crests, narrow breasts, small ears, fine legs, hard hoofs, and elegantly-turned croups; they are docile, spirited, nimble, hardy, courageous, and capable of supporting the greatest fatigue. Great numbers of these are annually transported into Turkey, but more into the East Indies: however, all travellers agree, that they are not comparable to the Arabian Horses, either for courage, strength, or beauty.

The Horses of India are of a very indifferent kind. Those used by the grandees up the country are brought from Arabia and Persia; they are sparingly fed with hay in the day-time; and at night with boiled peas mixed with sugar and butter: this kind of food, which appears to be very nutritive, assists them in bearing up against the almost intolerable heat of the climate. Those Horses naturally belonging to the country are very small and vicious. Taverner says they are so very little, that the young Mogul prince, when only seven years of age, rode one of them whose size scarcely exceeded that of a greyhound: and one of them was lately brought over to this country, as a present for the Queen, which was only about nine hands high, and very little larger than a common mastiff.

Indeed, it is highly probable that the extremes of heat and cold are equally inimical to this noble animal. The Horses of the Gold Coast, and of Guinea, as well as those of India, are extremely small, but docile. In Guinea, it is a common exercise with the grandees of that country, who are excellent horsemen, to dart out their lances before them when on full gallop, and to catch them again before they reach the ground. They have also a pastime on horseback, (requiring much dexterity on the part of the rider, and a great share of activity on that of the Horse,) which consists in striking of a ball with a battledore, while on a full gallop, and following it with such speed as to hit it again before it comes to the ground; and this they sometimes repeat for the space of a mile with amazing agility.

The Chinese Horses are scarcely superior to those of India, being small, feeble, ill-proportioned, and timid. Those of Corea are not above three feet high; and so very timorous, that they cannot be trained to the arts of war. It may therefore be justly said, that the Tartarian Horses were, in reality, the conquerors of China. They are, indeed, extremely serviceable in war; and, though of a moderate size, surprizingly patient, vigorous, bold, and swift. The Tartars and their Horses live together almost after the same manner as the Arabians:

Arabians: they begin to back them when only about seven or eight months old, placing their children on them, who easily manage them at that early age. Thus they break them by degrees; till at last, when they are about six or seven years old, they are able to endure the greatest hardships: some of them have been known to march two or three days without ever halting; and to be without any provender for five or six, except a handful of grass every eight hours; and, besides, to abstain from drinking for twenty-four hours together. These Horses, however, lose all their strength when introduced into China or the Indies; but they seem rather to improve in Turkey and Persia.

There are also fine Horses in Mingrelia and Circassia; and some which are highly valued in the Ukraine, Wallachia, Poland, and Sweden: but of such we have no particular account.

If we consult the ancients respecting the nature and qualities of Horses of different countries, we shall find that the Grecian, and particularly the Theffalian, were reputed excellent for warlike purposes; that those of Achaia were remarkable for their size; that the most beautiful came from Egypt, and were also extremely prolific; that the Horses of Ethiopia were of but small estimation; that Arabia and Africa furnished very beautiful steeds, and well adapted for the course; that those of Italy, and particularly of Apulia, were very good; that the Horses of Sicily, Cappadocia, Syria, Armenia, Media, and Persia, were equally esteemed for their fleetness and vigour; that the Sardinian and Corsican Horses, though small, were spirited and courageous; that those of Spain resembled the Parthian in being well adapted for war; that in Wallachia and Transylvania, there were Horses with bushy tails, and manes pendent to the ground, which were extremely swift and active; that the Danish Horses were excellent leapers; that those of Scandinavia were small, but well-shaped and active; that the Flanders breed was strong; that the Gallic Horses were very useful in carrying burdens; that those of Germany were diminutive, ill-shaped, and unserviceable; that the Swiss and Hungarian Horses were valuable; and, finally, that those of India were very diminutive, feeble, and timid.

Such are the different accounts of the distinct races of Horses in various parts of the world, both in ancient and modern times: but, respecting animals so intimately connected with man, and so immediately under his care, nothing can be advanced which is applicable to all times and climates. According to the degree of cultivation bestowed on them, Horses either improve or degenerate: their qualities of sagacity and docility alone remain inherent; and these neither change of climate nor diversity of management is able to obliterate.

Though Horses are endowed with amazing strength, they seldom exert it to the prejudice of their masters: on the contrary, they endure the greatest fatigue for their benefit. They possess benevolent dispositions; and a dread of the human race, together with a certain consciousness of the services they are capable of rendering them.

Hoofed quadrupeds are in general domestic, necessity compelling them to solicit our protection. Wild animals are furnished with feet and claws adapted to the formation of dens and retreats from the inclemencies of the weather; but the former are obliged to have recourse to man for artificial

shelter, as nature, in all climates, does not supply them with necessary food throughout the whole year.

Providence, which has wisely adapted the several services of domestic animals to the benefit of the human race, has also ordained, that the parts of such as have been most useful during their lives, should contribute the least to our benefit after death. The skin of the Horse is of but little value; his flesh is totally unfit for food; and no part of him is essential either in medicine or manufacture.

The Horse, as being a martial animal, was dedicated to Mars. The Persians, Armenians, and Massagetæ, sacrificed Horses to the Sun. The Suevi, an ancient people of Germany, according to Tacitus, maintained white Horses in the sacred woods at the public charge, and from them drew omens. The sight of a Horse was generally considered as a prognostic of war. Æneas had scarcely landed in Italy, before he saw four white Horses feeding in a meadow; on which Anchises immediately exclaimed—‘O foreign land, thou menacest war against us!’

The definitions of a perfect Horse, as quaintly penned by Camerarius, run thus: ‘It must,’ says he, ‘have three parts like those of a woman; the breast must be broad, the hips round, and the mane long. It must in three respects resemble a lion; its countenance must be fierce, its courage must be great, and its fury irresistible. It must have three qualities belonging to the sheep; the nose, gentleness, and patience. It must have three of a deer; head, leg, and skin. It must have three of a wolf; throat, neck, and hearing. It must have three of a fox; ear, tail, and trot. It must have three of a serpent; memory, sight, and flexibility. And, lastly, three of a hare, running, walking, and perseverance.’

HORSE-WORM. A species of fly-worm, called also Bott, produced from eggs deposited by a two-winged fly, of the shape and size of the humble bee, in the intestines of horses.

Worms in the human viscera have not been longer known to the world than those in horses; and farriers of every age have had their remedies for the long Worms bred in their intestines, and also for the short ones. The short ones are the animals now under consideration. But though mankind have been so long acquainted with their existence, they knew not their origin till Vallisnieri discovered that they were produced from the humble-bee flies: these flies always frequent the open fields, and are never found about towns and houses; for which reason those horses which are kept in stables during summer and autumn, are never infested by these Worms.

About the latter end of summer, these insects, so inimical to horses, are seen buzzing about their backs in the open fields, watching for an opportunity of depositing their eggs where nature has taught them to perform this operation: and Horses, at this season, are extremely sensible of the business in which these little annoyers are engaged; for they jump about, kick, and run, at the very sound of their wings.

These flies frequently settle under the tail of the horse; and, by means of some gentle titillation, occasion the animal to open its fundament a little: this they no sooner perceive, than they enter, and immediately lay their eggs. The Worms hatched from these eggs, or perhaps living Worms there

deposited if the fly is of the viviparous kind, soon find their way farther up the intestines, and often penetrate even into the stomach. After these Worms have had sufficient time to arrive at their destined growth, they naturally quit their abode; and, advancing towards the lower parts of the intestines, are either voided with the dung of the horse, or crawl out spontaneously.

The figure of these Worms does not present us with any thing singular. They are somewhat of a conic shape, their heads being pointed, and their posteriors broad. They are of different colours, some being greenish, others yellowish, and some brown. They are each provided with two crustaceous hooks, by which they lay hold of any substance, and so move themselves along; and this prevents their being forced out with the excrements of the animal.

When there is only a small quantity of these Worms lodged in the viscera of a horse, they seldom prove injurious to his health: but they sometimes encrease so prodigiously, as to bring on the most dreadful distempers; and, in some years, when numbers of horses have died of an epidemic malady, on opening their intestines, vast multitudes of these insects have been found alive in their stomachs, each having eat itself a sort of cell in the membrane of the stomach, and all being lodged there together as close as the seeds in a pomegranate.

When these Worms naturally quit their original abodes, they crawl about till they find some place of security, where they form shells of their skins; and, after passing through all their various transformations, attain their last and most perfect state.

As a cure for Worms in horses, clysters of oil are generally prescribed; but this mode of treatment is probably inefficacious, as oil, though it may increase the lubricity of the parts, and tend to deprive some of the insects of their hold, is certainly not fatal to the existence of one individual.

HORSEMAN. An appellation given to a bird about the size of the pigeon, called by the French Chevalier. See **CHEVALIER**.

HOTAMBÆIA. A species of serpent found in the East Indies, of a greyish yellow colour, and a very foetid smell.

HOTTENTOT FISH. This fish is so called because the Dutch first purchased some of them from the Hottentots. There are two or three varieties of them; one of which has its back and sides of a blackish colour, and its head of a dark purple. Another variety is of a deep blue, and seems to be spotted. The first sort is somewhat rounder, broader, and shorter, than the second. It weighs about a pound, and is seven or eight inches long.

These fish feed on sea-weeds, and any offals that happen to be thrown into the water. The Hottentots catch them with angles, whistling and making a great deal of noise at the same time; and imagine that this device induces them to bite the sooner. Their flesh is wholesome and well tasted; and, when the fishermen cannot dispose of it fresh, it is salted and dried in the sun, and sold to such mariners as happen to touch on the coast.

HOUND. Hounds may be distinguished, with regard to their manner of hunting, into such as discover and pursue the game by sight, and the quickness and swiftness of their motions; of which kind are the Gaze-Hound, the Grey-Hound, and the Terrier: and those which find and pursue the game by the excellence of their scent; of which there are several varieties. See **DOG**.

HOUND-FISH. An appellation given to two different fishes of the *squalus* genus; one distinguished by the name of the smooth, and the other by that of the prickly Hound. See **GALEUS LÆVIS**, and **GALEUS SPINAX**.

Willughby, and ichthyologists in general, mention another species of Hound-Fish, called the Starred Hound, or *Galeus Asterias*; but Artedi considers this only as a variety of the Smooth Hound-Fish.

Another species is likewise mentioned by some naturalists, called the Rough Hound-Fish, or Morgray, the *Pesce Gotto* of the Italians, and the *Catulus Minor* of classical writers: however, Artedi distinguishes it from the other species only by the appellation of the *squalus* with a variegated back and the ventral fins concreted. See **CATULUS** and **SQUALUS**.

HOWLET. A bird of the owl kind, so called from its mournful, howling voice. It is as large as the pullet, and measures eighteen inches to the extremity of the tail. The head, back, wings, and tail, are cinereous, speckled with white and black spots; the head is large, round, and thick of feathers; and the wings reach to the extremity of the tail.

HOWLET OF GESNER. This variety is larger than the hen; the colour is a mixture of red and black; between the eyes and on the back there are some cinereous feathers; and the legs are whitish with livid-coloured spots.

HUBARI. The name of a bird frequently mentioned by Arabian authors; and described as being somewhat larger than the goose, with very short wings in proportion to its bulk. It is said to be common round Damascus, and to afford much diversion to the Syrian fowlers. It is probably of the bustard kind; but we are not furnished with accounts sufficiently explicit to pronounce with certainty on this subject.

HUCK. An appellation sometimes given to the German river-trout. It bears a strong resemblance to the common trout in shape, but its back is covered with an infinite number of black spots. Its sides, which are red, contain a few black spots; its under-jaw has also some spots; but the rest of its head is entirely of one colour.

HUITINGO POLLACHIUS. A name sometimes given to the fish commonly known in England under the appellation of the whiting pollack. It nearly resembles the whiting in shape, but is much larger, broader, and thinner; and it is distinguished from the cod by the smallness of its head, the broadness of its body, and being destitute of a beard. This fish, which is common in the northern seas, is much esteemed for the table.

HUMBLE BEE FLY. A class of Flies comprehending various species of different sizes, but all agreeing in the great resemblance they bear to the Humble Bees of the smaller or middle-sized kinds. At first view, they might naturally enough pass for real Humble Bees; but, on a closer examination, it will appear that they are destitute of trunks, and furnished with only two wings: however, the species of the Humble Bee Fly are many of them different genera from each other, some of them having trunks, and others distinguishable mouths.

Nature has assigned the worms produced from these Flies a very singular habitation: they are lodged in the intestines of horses, or under the thick and firm skins of oxen. In the latter case, the worm hatched from the egg of its parent Fly, deposited there, forms a tumour which furnishes it with

with food and habitation; and in the middle there is an aperture for the purpose of respiration.

However, nature has not invariably decreed that all the worms of the Humble Bee Flies should feed on animal substances; for we find some delighted with vegetable food, and particularly one species that shews a strong predilection for the bulbous roots of flowers.

HUMISUGA. An appellation given to a species of fly, from it's supposed quality of subsisting on the juices of the earth, without taking in any solid food. It's body is brownish, or dun-coloured; there is a white spot at the insertion of the wings, and another on the head; the legs are black; the back is marked with four dull white longitudinal lines; and the wings, which exhibit a luminous appearance when put into water, are of a silvery whiteness. This insect is common about pathways, on mole-hills, and in other places where the ground has been recently stirred.

HUMMING-BIRD. A very beautiful genus of American birds; the distinguishing characters of which are, that the beak is of a subulated figure and as fine as a thread, longer than the head, and terminating in a fine tube or pipe, the upper mandible forming a kind of sheath for the lower; that the tongue is filiform, and rendered tubular by the junction of two threads; and that the feet are formed for walking.

Linnaeus enumerates twenty-two species of this genus, from the size of a small wren down to that of a humble-bee: and an European might be tempted to believe a bird so extremely minute as not to exceed a common bee in magnitude, to be a creature of the imagination only, were it not as frequently seen in America as butterflies in summer, sporting among the flowers, and extracting their sweets with it's little bill.

It is almost inconceivable how much these numerous, minute tribes, add to the high finishing and beauty of a rich luxurious Transatlantic landscape. As soon as the sun is risen, Humming-Birds of different kinds are seen fluttering about the flowers, without ever settling on them. Their wings are in such rapid motion, that it is impossible to discern their colours but by their effulgence. They are incessantly shifting from flower to flower, and drawing out their mellifluous juices: for this purpose they are furnished with forked tongues, which entering the cups of the flowers, extract their nectareous stores, the sole subsistence of these animals. The quick movement of their wings produces a kind of humming noise; and from this circumstance they derive their name.

These birds build their nests after a very singular manner: they suspend them from the extremities of twigs of the orange, the pomegranate, or the citron-tree; and sometimes even from the houses of the natives, provided they can find convenient twigs for that purpose. The female performs the office of an architect; while the male goes in quest of materials, such as cotton, fine moss, and the fibres of vegetables: of these substances a small nest is composed, admirably contrived, and warmly lined with cotton; in which the hen lays two eggs, each about the size of a small pea, and as white as snow, except a few brown specks. The male and the female perform the business of incubation by turns: but the latter appropriates to herself the greatest share of attention; she seldom quits her eggs, except for a few minutes in the morning; and again in the evening, when the flowers are co-

vered with the choicest dews. During this short interval the male takes her place; for as the eggs are so very small, if they were at all exposed to the weather, their contents would probably be injured.

The season of incubation continues twelve days; at the expiration of which the young brood appear, each nearly about the size of a blue-bottle fly: at first they are quite naked; by degrees they become covered with down; and at last feathers succeed, but much less beautiful than those which appear after the first moulting.

Father Labat informs us, that one of his associates in the mission to America found a nest of young Humming-Birds in a shed near his dwelling-house, which he took in at a time when they were about fifteen or twenty days old. He then placed them at his chamber window, that he might be amused by their sportive flutterings; but was soon surprized to see the old ones come and feed their brood regularly every hour in the day. By these means they themselves soon grew so tame, that they seldom quitted the chamber, and at last continued to live entirely with their young. All of them frequently perched on their master's hand, chirruping as if they had enjoyed perfect liberty. He fed them with a very fine paste, composed of wine, biscuit, and sugar; into which they thrust their tongues till they were satisfied, and then fluttered and chirruped about the room. 'I never beheld any thing more agreeable,' says Labat, 'than this lovely little family, that had taken possession of my companion's chamber, and that flew out and in at their pleasure, but were ever attentive to the voice of their master when he called them. In this manner they lived with him upwards of six months; but, at a time when he expected to see a new colony formed, he unfortunately forgot to tie up their cage to the ceiling at night, in order to preserve them from the rats; and in the morning he had the mortification to find them all destroyed.'

On the continent of America these birds continue to flutter all the year round, their food never forsaking them in those genial climates where they abound; but those of the Antilles, when the winter season approaches, retire, and, as some say, continue in a torpid state during it's severity. At Jamaica and Surinam, however, where the flowers retain a perpetual verdure, these elegant birds are never known to disappear.

It is doubtful whether these birds have one continued note in singing. All travellers agree that, besides the humming noise produced by their wings, they have a low interrupted chirrup; but Labat asserts, that they have a most pleasing solemn melody in their notes, though weak, and proportioned to the organs which produce it.

The plumage of the Humming-Bird was formerly in high estimation among the Indians, as an ornament for their belts and head-dresses. Their children take these birds in the fields, on rings besmeared with a viscid substance. They approach the places where the little creatures are flying, and twirling their rings in the air, so allure them, either by their colour or sound, that the simple animals perch on them, and are detained. They are then instantly killed, gutted, and suspended in chimneys, in order to dry. Those who take the greatest care of their feathers, dry them in stoves, which is generally found a better method of preserving their beauty. The highest ranks of savage nobility formerly valued themselves on the ornaments

ornaments derived from these birds; but at present they rather catch them for sale to the Europeans than as decorations for themselves. Even among the Americans, the taste for such finery is beginning to grow obsolete; for they now adopt, if not the dresses of the Europeans, at least the materials of which they are composed.

HUMMING-BIRD, RED, LONG-TAILED; the *Trochilus Ruber* of Linnæus. This is one of the largest and most beautiful species of the whole genus. The bill is long, slender, incurvated, and black; the head and upper part of the neck are of the same colour, but glossy; the throat is a most splendid green, reflecting the colour of gold; and below this there is a black semilunar line, parting it from the breast, which is rosaceous. The back and covert-feathers of the wings are red, somewhat inclining to orange; the quills are of a dull purple colour; the tail contains two long feathers, which are also purple; the side-feathers of the tail are a reddish orange; the lower part of the back, the rump, and the coverts of the tail, are of a fine green hue; and the legs and feet are black.

HUMMING-BIRD, LITTLE BROWN; the *Trochilus Pella* of Linnæus. This species, which is a native of Surinam, is extremely minute. The bill is long, slender, and incurvated; the upper mandible, which is longer than the nether, is of a dark or black colour; and the lower mandible is flesh-coloured towards the base, and black towards the tip. The top of the head is of a dirty brown hue; the throat, the sides of the head, the neck, the breast, and the belly, are of a bright bay or dirty orange-colour; under the eye there is a dark brown or black stroke; the back and the upper part of the wings are of a dull brown colour intermixed with a bright yellow; the quill and tail-feathers are a dirty purple; and the legs, feet, and claws, are black.

HUMMING-BIRD, LONG-TAILED, GREEN; the *Trochilus Forficatus* of Linnæus. This bird is a native of Jamaica. The tail is very long and broad in proportion to the body; the bill is slender, straight, long, and blackish; the crown of the head is blue; the quills are of a dirty purplish colour; the coverts of the wings are green; the lower belly and coverts under the tail are white; the thighs are dusky; the tail-feathers are of the most vivid beauty, appearing sometimes of a shining blue colour, at others greenish, and sometimes an assemblage of all the most beautiful tints imaginable. The entire plumage of the body possesses something of a shining golden lustre; and the legs, feet, and claws, are black.

HUMMING-BIRD, LONG-TAILED BLACK CAP; the *Trochilus Polytmus* of Linnæus. The tail of this species is remarkably long; the two long feathers are of a loose, silky texture, and easily ruffled; the bill is thicker at the base than most of the kind, pretty long, a little incurvated, and of a yellow colour, with a black point; the crown of the head, and the beginning of the neck behind, are black, with a blueish gloss; the throat, breast, and belly, are covered with green feathers inclining to blue, and of such a beautiful surface, that they reflect the light like burnished gold; the plumage on the back is of a yellowish green hue, without any remarkable lustre; the wings are a brownish purple, in some lights exhibiting a blueish purple cast; and the tail is black or dusky, the feathers increasing in length from the middlemost to the most extreme but one, which is five times the length of

the rest. This bird, which was imported from Jamaica, was first described by Edwards.

HUMMING-BIRD, WHITE-BELLIED; the *Trochilus Mellivorus* of Linnæus. This species is a native of Surinam. The bill is pretty long, straight, and slender, the points of the upper and lower mandible inclining a little towards each other; the whole head and neck are of a fine blue colour; the back, rump, and lesser covert-feathers of the wings, are a lively green; at the bottom of the neck behind there is a white mark in the shape of a crescent, the horns pointing upwards; the belly is white; the wings are copper-coloured inclining to purple; the middle feathers of the tail are green; the sides are white; and the legs and feet are of a blackish colour. The colours of this bird, as is common indeed to the genus in general, seem intermixed with fine golden threads, which add to it's brilliance when viewed in the sun-beams.

HUMMING-BIRD, GREEN, BLACK-BELLIED; the *Trochilus Holocercus* of Linnæus. This bird is pretty large for it's genus: the bill is long, slender, incurvated, and black; the head, neck, back, and lesser coverts of the wings, are of a blueish green colour; the scapulars have something of a red intermixed with the green; the breast, and the covert-feathers of the tail both above and beneath, are blue; the middle of the belly is black; the quill-feathers are of a dirty purplish tinge; the tail is black above and blue beneath; and the legs and feet are black.

HUMMING-BIRD, CRESTED; the *Trochilus Cristatus* of Linnæus. This bird is a native of the West Indies: the bill is slender, sharp-pointed, incurvated, and blackish; the top of the head, from the bill to the hinder part, which terminates in a crest, is partly green and partly blue, both which colours shine with a lustre surpassing polished metal; the plumage on the upper part of the body and wings is a dark green intermixed with gold-colour; the breast and belly are of a dark, dirty, grey colour; the quills are purplish; the tail is a blueish black, somewhat glossy on the upper side; and the legs and feet, which are very small, are blackish.

HUMMING-BIRD, RED-THROATED; the *Trochilus Colubris* of Linnæus. Catesby, in his History of Carolina, first figured and described this species, which is a native of Carolina, and during the summer is found as far north as New England. The bill, with respect to shape and colour, resembles the genus in general; the upper part of the head, the neck, back, and lesser coverts of the wings, are of a fine glossy dark green hue, seemingly intermixed with threads of gold; the primary feathers of the wings are a dirty purple; the tail is purple, except the middle feathers, which are green; the middle of the belly, and the covert-feathers under the tail, are white; and the throat is of a beautiful red hue, but varying according to the position in which it is viewed.

HUMMING-BIRD, LEAST; the *Trochilus Minimus* of Linnæus. This very minute species weighs only about twenty grains: the bill, and the whole upper side of the head, neck, body, wings, and tail, are of a dirty brown hue, but in the sun exhibit a gloss of a golden green colour; the underside of the head, neck, and belly, are a dirty white; and the legs and feet are black. This bird, which is a native of Jamaica, was first noticed by Sir Hans Sloane.

HUMMING-BIRD, RUBY-CRESTED; the *Trochilus*

chilus Elatus of Linnæus. The bill of this species is of the common structure and colour; the crest or crown, which is of a fine red or flame-colour, possesses the lustre of the ruby; the throat resembles burnished gold, changing in some positions to an emerald green; the body, and the coverts of the wings, are of an obscure brownish olive hue, the quills inclining a little to purple; the tail-feathers are of a cinnamon tinge, with black tips; the lower belly, and the coverts beneath the tail, are of the same colour with the tail; and a white line crosses the middle of the belly. This beautiful little bird, which is a native of Guiana, was first described by Edwards.

HUMMING-BIRD, GREEN; the *Trochilus Melifugus* of Linnæus. The bill of this bird is long, black, and slender; the head, neck, and whole body, are of a lively green colour, blueish and glossy on the upper side; the coverts of the wings are somewhat yellowish; the quills are of a brownish purple hue; the tail is a dark blue; and the legs and feet are black.

HUSO. A large fish of the sturgeon or accipenser kind, without tubercles, caught in the Danube, Boristhenes, and other large rivers. It is furnished with a very long snout, under which there are either four or eight beards; and it has one dorsal fin placed near the tail, and two pair under the belly. In its general shape, it bears a pretty strong resemblance to the pike; its back is black, and its belly yellow; it has thirteen dorsal and forty-three caudal scales; and is supplied with cartilages instead of bones. This fish sometimes grows to the length of twenty-four feet, and frequently weighs four hundred pounds. It is a gregarious animal, swimming always in shoals; and is caught in great abundance about the months of October and November. Its flesh is not much esteemed; but the fish itself is extremely valuable on account of the drug called isinglass, and that luxury known by the name of caviar; which are both prepared from it. See **ISINGLASS FISH**.

HYÆNA; the *Canis Hyæna* of Linnæus. This animal, which belongs to the dog kind, is about the size of the wolf, and resembles that creature in the shape of its head and body: however, the head is somewhat broader, and less pointed; and the ears are longer. The hair on the body is long, coarse, rough, of an ash-colour, and marked with long black stripes from the back downwards; and the neck is furnished with an upright mane. The tail is very thick of hair, sometimes plain, and at others barred with black; and immediately under it, above the anus, there is an opening into a kind of glandular porch, which separates a substance of the consistence, though not of the odour, of civet: and this aperture probably gave rise to the erroneous opinion of the ancients, who asserted, that the Hyæna was every year alternately male and female.

This creature, which is more savage and untractable than any other quadruped, is continually in a state of rage or rapacity; ever growling, except when receiving its food: its eyes then glitten, the bristles of its back are erected, and its teeth appear; all giving it a most frightful aspect, which is still farther heightened by its dreadful howling, that sometimes resembles the voice of a human creature in distress; and hence the ancients have amused us with fabulous accounts of its counterfeiting those accents purposely to attract

the notice of unwary travellers, and then to destroy them.

The Hyæna, indeed, in proportion to its size, is the most terrible of all quadrupeds: nor does its courage fall short of its ferocity; it defends itself against the lion, is a match for the panther, and frequently vanquishes the ounce. However, it is an obscure and solitary animal; and chiefly inhabits Asiatic Turkey, Syria, Persia, and Barbary. It resides either in the caverns of mountains, in the clefts of rocks, or in subterraneous dens which it has formed for itself. Though taken ever so young, it seems utterly incapable of being tamed; it is ferocious without generosity, and cruel from innate principle. Like the jackall, it violates the repositories of the dead, and greedily feasts on the putrid contents of the grave. Like it, too, it preys on the flocks and herds; and, when destitute of other food, will eat the roots of plants, and the tender shoots of palm-trees.

When the superstitious Arabs kill a Hyæna, they carefully bury the head, lest it should be applied to magical purposes, as the neck was of old by the Thessalian enchantress. Nor is it at all wonderful that an ignorant Arab should attribute to the remains of this animal a supernatural power, when even the most enlightened among the ancients believed that it changed its sex; and that it had a power of charming the shepherds, and, as it were, of rivetting them to the very spots where they stood. Some likewise have reported, that this creature changed the colour of its hair at will; others, that a stone was found in one of its eyes, which, when put under a man's tongue, endued him with the gift of prophecy; some, that its neck was destitute of joints; and others, that its very shadow restrained dogs from barking. Such are the absurdities which have been propagated concerning this formidable animal; and such probably have originated from the ferocity of its nature, and the principle of fear in the human breast, which always conjures up imaginary terrors, and adds horror to what is only dreadful.

HYÆNA, SPOTTED. This species, which inhabits Guinea, Ethiopia, and the Cape of Good Hope, possesses the nature and qualities of the common Hyæna, but is considerably larger and stronger. The head is large and flat; the whiskers are extremely long; the mane is short and black; the hair on the body is short and smooth; and the ears, which are short and pointed, are internally cinereous, and externally black. The face is black; the body and limbs are of a reddish brown hue, and marked with distinct round black spots; the hind-legs are barred transversely with black; and the tail is short, black, and hairy.

HYDRA. See **NATRIX**.

HYDROCHÆRIS. The Linnæan term for a species of the hog genus found in Surinam. See **CAPYBARA**.

HYDROCORAX. A name given by some authors to the *Corvus Indicus*.

HYMENOPTERA. In the Linnæan system, an order of insects having four membranaceous wings; and the tails of the females being furnished with stings, which in some are used for instilling poison, and in others merely for piercing the bark and leaves of trees, in order to deposit their eggs. To this class belong ten genera, the cynips, lenethredo, firex, ichneumon, sphex, chrysis, vespa, apis, formica, and mutilla, comprehending a considerable

considerable number of subordinate species. This term is derived from Ymen, a Membrane; and Pteron, a Wing.

HYPNOTICUS SERPENS, the Sleep Snake. An East Indian species of serpent, called by the

Ceylonese Nintipolong, a word importing the same meaning. It is of a deep blackish brown colour, variegated with white spots; and its poison, which is extremely subtle, always brings on a sleep that terminates in death.

I.

JABIRU. A large aquatic bird of the crane kind, by some called the Negro. It is a native of Brazil, and was first described by Marcgrave. It is somewhat larger than the swan; the head is large; the neck is thick; the beak is long and straight; and the legs, which are two feet long, are thick and scaly. The body is entirely white; the neck and head are naked, and covered with a thick black skin instead of feathers; and the tail is broad and short.

JABIRUGUACU. A Brazilian bird, called also Nanduapoa; and by the Dutch, Scurvogel.

JABOTI. An American species of tortoise; the shell of which is black, marked with numerous hexangular spots; and the head and legs are brown, variegated with spots of a dusky greenish hue.

JACAMACIRI. A Brazilian bird about the size of the lark, with a straight, sharp-pointed, black bill, near two inches long. It approaches to the nature of the woodpecker tribe, having feet of a similar shape with those of that genus; but its tongue is short, in which particular it differs from all other woodpeckers. Its whole head, neck, wings, back, and tail, are green, variegated with yellow and red; its breast and belly are of a dusky yellow hue; and there is a white space under its bill.

JACANU. A Brazilian bird of the moor-hen genus: it is about the size of the pigeon, but its legs are considerably longer, and of a greenish colour; and all its toes, particularly the hinder one, are remarkably long. The back, belly, and wings, are an admixture of green and black; the neck and breast are of the most beautiful pavonaceous colours; the head is small, and covered with a torquoise-coloured membrane; the beak is shaped like that of the gallinaceous kind, partly greenish and partly red; and the tail is extremely short. This bird frequents marshy places; and its flesh is esteemed by the Brazilians.

JACAPU. A bird of the merula kind, about the size of the common blackbird. The whole upper part is of a deep black colour, except that the tips of the feathers which cover the rump are greyish; the breast is of a very fine red hue; and the tail is long and black.

JACARE. A Brazilian animal of the crocodile or alligator kind, not specifically differing from that formidable tribe. It has no tongue; the eyes are large, round, and very bright; the irides are blue; and the pupils are a fine black. The fore-legs are short and slender, the hind ones being longer and more robust; the fore-feet have each five toes, the hinder only four; and the farther half of the tail is furnished with a strong erect fin, which essentially assists the creature in swimming.

JACARINI. A Brazilian bird of the fringella kind, nearly about the size of the common goldfinch. The bill, which is pretty thick, is greyish, of which colour also are the legs and feet; the body is wholly of a fine shining black hue like polished metal, reflecting green and blue; and the undersides of the wings are white.

JACK. A provincial appellation for the pike. See **PIKE**.

JACK-DAW; the *Corvus Monedula* of Linnæus. This very common bird has a large head in proportion to its body; the hind-part of the head is of a fine light grey colour; the breast and belly are dusky inclining to cinereous; the body is black, slightly glossed with blue; the feet and bill are black; and the claws are very strong and hooked.

The Jack-Daw, which is docile and loquacious, breeds in steeples, old castles, and high cliffs; lays five or six eggs; and feeds on insects, seeds, and grain. Indeed, so very voracious is this bird, and so thievish in its disposition, that it generally carries off much more than it can devour. It is extremely injurious to farmers and gardeners, and therefore constantly proscribed. In some parts of England it is caught by the following device: A stake, about five or six feet in length, is firmly driven into the ground, and the point rendered so sharp, that the Jack-Daw cannot rest on it. A hole, about three-quarters of an inch in diameter, is made in the stake, within a foot of the top; through which a stick, about eight inches long, is put: then a horse-hair spring or noose is fastened to a thin hazel wand; and this is brought up to the place where the short stick is situated, and carried through the hole along with it, the remainder being left open under that stick. The other end of the hazel rod is put through a hole in the stake near the ground, and fastened there. This being done, the stake is planted among such food as Jack-Daws are generally fond of: the bird naturally endeavours to rest on it; but finding the point too sharp, he descends to the little cross stick, which sinking with the weight, the spring receives his leg, and holds him fast.

JACK-SNIPE; the *Scolopax Gallinula* of Linnæus. This bird is about half the size of the common snipe, and on that account has sometimes received the name of the Half-snip. The crown of the head is black, tinged with ferruginous; there is a yellow line over each eye; the neck is variegated with white, brown, and pale red; the scapulars are long, narrow, and brown, bordered with yellow; the rump is of a glossy blueish purple hue; the belly and vent are white; the tail, which is brown edged with tawny, consists of twelve pointed feathers;

feathers; and the legs are of a cinereous green colour.

This bird frequents the same places, and delights in the same sort of food, as the common Snipe; but it is more sluggish in its motions, and seldom attempts a distant flight: it will suffer a person to come almost close up to it before it will rise; and therefore affords excellent diversion to the fowler.

JACKALL; the *Canis Aureus* of Linnæus. This animal is vulgarly termed the lion's provider, from an opinion that it rouses that animal's prey. However, the truth is, that every creature in the forest is set in motion by the cries of the Jackall: the lion, and other beasts of rapine, attend the chace by a kind of instinct, and seize those timid animals that betake themselves to flight at the noise of this nocturnal pack.

Though the Jackall is one of the most common wild beasts of the East, there is scarcely any quadruped less known in Europe, or more imperfectly described by naturalists. It is said to be of the size of the common fox, and to resemble that animal in its hinder parts, particularly the tail; and the wolf in its fore-parts, especially the nose. Its legs are shorter than those of the fox; and its colour is a bright yellow.

These animals are natives of all the hot and temperate parts of Asia; and are found in Barbary, and other countries of Africa, as low as the Cape of Good Hope. There seems to be several varieties among them: those of the warmer climates appear to be the largest; and their colour partakes more of a reddish brown than of that beautiful yellow by which the smaller Jackalls are distinguished.

The Jackall seems to be placed between the wolf and the dog; and to possess the ferocity of the former, and the familiarity of the latter. Its voice is a howl mixed with barking, and a lamentation resembling that of human distress; and, in its pursuits, it is more noisy than the dog, and more voracious than the wolf. Jackalls always hunt in packs of forty or fifty together; and unite regularly every day, in order to form a combination against the other inhabitants of the forest. Nothing can escape them; they satisfy their appetites with the smallest animals; and yet, when thus united, have sufficient courage to face the largest. They seem to be under little apprehension from mankind; but pursue their game to the very dwellings of the natives, without testifying either attachment or suspicion. They boldly enter sheep-folds, yards, and stables; and, when they can find nothing better, devour leather harnessing, boots, and shoes; and frequently carry off what they have not time to consume. They not only attack the living, but also the dead: they scratch up new-made graves with their feet, and devour the most putrid corpses; and, in those countries where they abound, it is absolutely necessary to beat the earth over the graves, and to mix it with thorns, in order to prevent the Jackalls from scraping it away.

These creatures always assist each other, as well in the employment of exhumation, as in that of the chace. While engaged in this dreary work, they encourage each other by a doleful cry, resembling that of children under castigation; and, when the body is dug up, they share it amicably among themselves. Like all other savage animals, when once imbued with human blood, they never can refrain from pursuing mankind afterwards: they

watch the dormitories of the dead, mark the progress of armies, and close the rear of caravans. In short, they may be considered as the vultures of the quadruped kinds; every thing that once possessed animal life seems equally grateful to them; the most putrid substances are eagerly devoured; and the most insipid morsels are added to complete the repast.

The Jackall hides itself by day in some hole, seldom venturing abroad before the night commences. When it has fallen on the scent of any larger animal, it gives notice to its associates by a kind of howl, which it repeats as it runs; while all the Jackalls within hearing pack to its assistance. The chace is sometimes long and warm; the creature pursued frequently takes shelter near the abodes of men; and thus the Jackalls are often disappointed when they expect an immediate booty. But man is not the only enemy that opposes the Jackall's industry and success: the lion, the tiger, and the panther, whose appetites are superior to their swiftness, attend to its call, and follow in silent expectation at a small distance behind. After the Jackall has perhaps tired down its prey, and is just about to participate of the fruits of its labour, the lion, or the leopard, comes in, satiates himself on the spoil, and leaves only the scanty remains to the famished hunter: hence it is not strange that the Jackall is extremely voracious, since it seldom has a sufficiency; nor that it preys on putrid substances, since it is not permitted to feast on what is recently killed.

Besides these enemies, this creature has still another to contend with; namely, the dog, between whom and the Jackall there exists such an irreconcilable antipathy, that they never meet without an engagement. The Indian peasants often chace Jackalls in the same manner as the Europeans pursue foxes; and have learned by experience to distinguish when they have got a lion or a tiger in their rear: on such occasions they keep their dogs close, and endeavour to put these furious animals to flight by their cries. When the lion is dismissed, the Jackalls are more easily vanquished; the dogs overtake them in their career; and, by the assistance of their masters, generally destroy some of them.

Wild as the Jackall naturally is, Dallon informs us, that it is capable of being tamed, and is sometimes kept among domestic animals.

Linnæus mentions an animal of this kind, about the size of a large cat, which inhabits Surinam. The tongue is fringed on the sides; and on the cheeks, above the eyes, and under the throat, there are numbers of warts. The upper part of the body is of a greyish colour, and the lower white; and there are five toes before, and four behind.

JACOBINE; the *Columba Cypria Cucullata* of Moore. This species of pigeon, when of the genuine breed, is the smallest of any. It has a range of feathers, inverted quite over the hinder part of the head, and reaching down on each side of the neck to the shoulders of the wings, which forms a kind of hood, and gives the bird its classical name. The colours of the plumage are various, being a mixture of red, yellow, blue, black, and mottled; but whatever is the general colour, the head, tail, and flight, are always white. Some varieties are feathered down to the toes, and the legs of others are bare.

JACULATOR; the *Chætodon Rostratus* of Linnæus. This fish has an entire tail, nine spines in the dorsal fin, a brown circular spot resembling

an eye, and a cylindric snout. It is a native of India, and derives its name from the manner in which it collects its food: for this purpose it frequents the shores and sides of the sea and rivers; and when it spies a fly on any of those plants which grow in shallow water, it swims on to the distance of a few feet, and then, with surprising dexterity, ejects out of its tubular mouth a single drop of water, which never fails to precipitate the insect into the sea or river, where it becomes an easy prey.

JACULUM. An appellation given to the serpent more frequently called the acontias, found in the island of Rhodes, and some other places. See **ACONTIAS**.

JACUPEMA. A Brazilian bird of the pheasant kind, about the size of the common European hen. It receives its name from its note, which is a repetition of the word Jacu. Its flesh is reckoned extremely delicate; and it is easily domesticated.

JAGUACATI-GUACU. A Brazilian bird of the halcyon kind, called by the Portuguese Papa Peixe. It is about the size of the thrush; and its colours have a strong resemblance to those of the common king-fisher.

JAGUAR. An animal of the feline kind, of a bright tawny colour. The top of the back is marked with long black stripes; and the sides are impressed with irregular oblong spots, open in the middle, which is the ground colour of the hair. The thighs and legs are marked with full black spots; the belly and breast are whitish; and the tail is shorter than the body.

The Jaguar resembles the ounce in size, in the figure of its spots, and even in its disposition. It is the most formidable, as well as the most cruel animal, and in a word the tiger of the New World, where nature seems to have contracted every kind of quadruped. Like the tiger, the Jaguar lives solely on prey: but any kind of light is sufficient to intimidate it; and when its stomach is full, it so entirely loses all its courage and vivacity, as to fly before a single dog. It is neither nimble nor active, except when pressed with hunger: nevertheless, the savages, who are naturally timid, are afraid to encounter it; alledging, that it prefers them to the Europeans, whom it never attacks.

Almost all authors who have penned the history of the New World, mention this animal; some under the name of the tiger or leopard; others under its Brazilian appellation; and some have called it the Jaguara, or Janouara, one of its Brazilian titles. It is found in Brazil, Paraguay, Guiana, Mexico, the country of the Amazons, and all South America. It begins, however, to become more rare in Brazil, its native climate, than formerly: a price has been set on its head; in consequence of which numbers have been destroyed; and the rest have retired from the coasts to the more desert and interior parts of the country.

JAGUARETTE. This animal inhabits the same countries, and possesses the identical dispositions, of the jaguar; so that naturalists have been at a loss to determine whether they were two distinct species of the same genus, or only varieties of the same species. Piso and Marcgrave, the only two authors who seem to have had an opportunity of giving original descriptions of the Jaguarette, say that it is distinguished from the jaguar by having shorter, more bright, and differently coloured hair, which is black, and variegated with spots of a still

deeper black. In every other particular it resembles the jaguar: and may therefore be safely fixed as a variety only of the same species; especially as Piso informs us, that in the jaguar the ground-colour of the hair, and that of the spots, vary in different individuals of the same species.

The Jaguarette is much less common than the jaguar, at least near the abodes of men. It keeps close to those solitudes where it can range without interruption; and prefers liberty and security to plenty accompanied with danger.

JAMACAI. A Brazilian bird, about the size of the lark: its head is small and black; its beak is a little incurved; its throat is of the same colour with its head; the upper part of its neck is yellow; and its back, breast, and belly, are also yellow. Its wings are black, except a white spot on each; its tail is wholly black; and its legs and feet are brown. This bird makes a very elegant appearance; and, from the extreme length of its tail, it seems to be of the motacilla kind.

JAMBON. An appellation given by some naturalists to a kind of marine shell somewhat resembling a ham of bacon; a species of the pinna marina.

JAMBU. A sort of Brazilian partridge, of which there are two species. They are both of a dusky yellow colour; and their flesh is much esteemed for its delicacy and flavour.

JAPACINI. A small Brazilian bird, having a long, black, pointed beak, a little bent downwards; the head is black; the back, neck, and wings, are of a greenish brown colour mixed with black; the upper part of the tail is black, the under being spotted with white; the breast, belly, and thighs, are variegated with white and yellow; and the latter are likewise marked with transverse black streaks.

JAPU. A Brazilian bird of the woodpecker kind, called also Jupajuba. See **JUPAJUBA**.

JARARA-COAYPITINGA. A species of American serpent, which bears a striking resemblance to the common viper, and is equally venomous. The tail is somewhat paler than the rest of the body; and thence it receives its name, which, in the language of the natives, expresses this quality.

JARARA-EPEBA. An American serpent of a brown colour, variegated with a beautiful undulated red line running along the back like a chain.

JARARACA. A serpent very common in America, of which De Laet enumerates four species. It seldom exceeds one foot and a half in length; the head is marked with some prominent veins; and the body is of a dusky brown colour, variegated with red and black spots. This reptile is accounted very poisonous; but the natives are provided with an antidote against its effects in the root of a plant by them called caatia; and, by the Portuguese, herba de cobros.

JARARACUCU. An American serpent of the viviparous kind; and extremely prolific, thirteen young having been found in the belly of a female of this species. It grows to the length of thirty inches; and, like other poisonous reptiles, has very large and long teeth hid in the gums, containing a yellow infectious fluid: these it only exerts in the act of biting; and so deleterious is its poison, that it generally carries off the person infected in the space of twenty-four hours.

JAUNDICE-BIRD. An appellation given by some authors to the galbula, a bird of the turdus kind.

kind, having black wings, and the body being beautifully stained with a golden tinge.

JAY; the *Corvus Glandarius* of Linnæus. The Jay is one of the most beautiful of the feathered tribes that is properly a native of Britain. The bill is strong, thick, black, and about a quarter of an inch long; and the tongue is black, thin, and cloven at the point. The forehead is white, streaked with black; the head is covered with very long feathers, which the bird can erect at pleasure; the neck, breast, back, and belly, are of a faint purple colour, dashed with grey; the covert-feathers of the wings are of the same colour; the greater coverts of the wings are most elegantly barred with a lively blue, black, and white; the tail is composed of twelve feathers; and the feet are of a pale brown colour.

The Jay lays five or six eggs of a dull white colour mottled with a pale brown. Like the magpie, it feeds on fruits; and in summer is very injurious to gardens, being a great devourer of pease and cherries. In autumn and winter it lives on acorns; and, according to Dr. Kramer, will sometimes kill small birds. Its native note is very disagreeable; but being naturally extremely docile, it is easily taught to imitate the human voice. Its length is about thirteen inches; the expansion of its wings is twenty-six; and its weight is between six and seven ounces.

JAY, BLUE; the *Corvus Cristatus* of Linnæus. The shape of this bird is not unlike that of the common European Jay, except that the tail is longer, and the feathers are of unequal lengths, those in the centre being the longest. The bill is black; and the nostrils are covered with small white hairs, reflected forwards. The top of the head is adorned with long blue plumes, which the bird can either erect or depress; the sides of the head, and part of the throat, are white, surrounded with a black line; and above each eye there is a white spot. The lower part of the neck behind, and the back, are of a blueish purple colour; the upper sides of the wings and tail are a very fine blue; and the lower part of the back and rump are of the same colour. The tail-feathers, except the two centre ones, are tipped with white, and barred with three black lines; the rest of the quills next the back, and the first row of the feathers above them, are tipped with white, and elegantly barred with black. The breast is of a brownish red colour, inclining to roseaceous, which gradually becomes white towards the belly; and the legs, feet, and thighs, are a dusky brown, and of the common form.

This bird, which inhabits Carolina, has a more harmonious note than the European Jays; and the colours of the female are nearly the same with those of the male, except that they are somewhat duller.

JAY, BLUE, EAST INDIAN; the *Coracias Indica* of Linnæus. This bird is considerably larger than the common Jay: the bill is black or dusky; the crown of the head is of a fine blueish green colour; the fore-part and sides of the head, beneath the eyes, the throat, breast, upper side of the neck, and back, are of a reddish brown hue, somewhat lighter on the throat and breast than behind; the rump and covert-feathers above the tail are of a fine blue colour; the middle feathers of the tail are green; and the outsides are a beautiful blue at their bottoms and tips, and green in the middle. The lesser coverts of the wings are of an ultramarine blue colour; the first row of coverts above the

quills is sea-green; the quills are sea-green at their bases, ultramarine in the middle, and sea-green again towards their ends; but their extreme points are a fine dark blue. The belly, thighs, and coverts beneath the tail, are a blueish sea-green; and the legs and feet are of a yellowish flesh-colour.

JAY, BUFF, OF MADRASS. This species is about the size of the common magpie. The upper part of the tail is black, except the extreme points, which are yellow; a black oblique stripe surrounds the eyes; the wings are black, with yellow points; and the other parts of the body are brownish, intermixed with dusky reddish lines.

JAY, YELLOW, EAST INDIAN. This bird is nearly of the same size and colours with the Buff Jay of Madras, except that the yellow is more faint. The breast, as low as the vent, is marked with oblique winding lines; the back and throat are yellow; and the wings, with the space surrounding the eyes, are black.

JAY, GREEN, EAST INDIAN. This beautiful bird is chiefly green, and of a very deep tinge on the back and tail. The tail is remarkable for having three points, blackish at their tips, and the middlemost the longest.

IBEX. An animal of the goat kind, inhabiting the highest Alps, the mountainous parts of Germany, and the Isle of Crete. It is extremely swift; and its chase is attended with the greatest danger. The horns, which are large, knotted, and reclining backwards, are sometimes four cubits long; the head is small; and the legs are very slender: so that this creature, though properly belonging to the goat kind, would bear a strong resemblance to the stag, were not the male furnished with a very long black beard. The tame species of goat is supposed to have sprung from this flock.

IBIBIBOCA. An American serpent, called by the Portuguese *Cobra de Coral*. It is about two feet long, and two inches thick, but terminates towards the tail in a sharp point. The belly is white, bright, and glossy; the head is covered with white scales of a cubic figure; and the body is variegated with black, white, and red. This reptile is very slow in its motions, but of the most poisonous nature.

IBIJARA. An American serpent of the amphibia kind, or those which are erroneously supposed to have two heads. The head and tail are of the same shape, and of an equal thickness; and it is said that the creature can strike equally with either, and that both contain a poisonous fluid. The body is about a foot long, and as thick as a man's finger: it is white, shining, glossy, and elegantly marked with rings and streaks of a brown or copper colour; and the eyes are so very small, as to be scarcely visible. This reptile lives under ground, and feeds on ants and other small insects: it is often thrown up in digging; and, if we may credit the Portuguese, its poison is virulent beyond the reach of every human remedy.

IBIAU. A very beautiful Brazilian bird, of the caprimulgus or goatsucker kind, and about the size of the swallow. The head is large, broad, and flat; the eyes are black and lively; the beak is small; the mouth is enormously large; the legs are very short; the tail is broad; and the colour is blackish, spotted and variegated with white and yellow.

IBIRACOA. A West Indian serpent, of a variegated colour mottled with black, white, and red;

red; whose bite is highly venomous, and always attended with the most alarming effects.

IBIS. An Egyptian bird of the stork kind; to which divine honours were formerly paid by the superstitious natives, because instrumental in destroying the serpents, locusts, and other noxious insects, with which that country is over-run. Some have confounded this bird with the hæmatopus, or red-legged heron; and others have candidly owned their ignorance of what the ancients intended by the Ibis. However, according to the best-informed naturalists, it is wholly black; the beak is long, hooked, and red; the legs are of the same colour; and the neck is as long as that of the heron. It seems to be peculiar to Egypt; and though it generally frequents the vicinity of the Nile, it never trusts itself in the water, nor indeed is it adapted for swimming. It generally builds its nest in palm-trees, in order to avoid the cats. Aldrovandus relates, that the flesh of the Ibis is red, like that of the salmon; that it is sweet to the taste; and that the skin is extremely hard and tough.

IBITIN. A serpent of an uncommon size, and of the most dangerous nature, found in the Philippine Isles. It twists its tail round the trunk of a tree, and strikes either man or beast that happens to come in its way with unerring and fatal aim; after which it devours them, and squeezes itself against some tree, purposely to digest what it has eaten.

ICHNEUMON; the *Viverra Ichneumon* of Linnæus. This animal, which some authors have injudiciously denominated the Cat of Pharaoh, is one of the boldest as well as most beneficial animals of the weasel kind. In Egypt, where it is chiefly bred, it answers all the purposes of the European cat, and is even more serviceable in destroying vermin. It is usually of the size of the martin; and greatly resembles it, except that its hair, which is generally of a gristly black hue, is rougher and less downy; the tail is also less bushy at the extremity; and every single hair possesses three or four different colours, which are seen in different dispositions of its body. Under the longer hairs there is a softer fur of a brownish colour, the rough hair being about two inches long; but the legs, paws, and snout, are covered with only one sort of short smooth hair. To all the strength of the cat, the Ichneumon unites a superior share of instinct and agility, a more universal appetite for carnage, and a greater variety of powers for its acquisition. Rats, mice, serpents, lizards, and insects, are all equally the objects of its pursuit: it attacks every living creature which it is able to overcome, and indiscriminately preys on flesh of all kinds. Its courage can only be equalled by the vehemence of its appetite: it neither stands in awe of the power of the dog, the insidious malice of the cat, the claws of the vulture, nor the fangs of the viper. It wages war with all kinds of serpents, however venomous; and, whenever it begins to perceive the effects of their rage, we are informed that it has recourse to a certain root which the Indians call by its name, returns to the attack, and seldom fails of victory.

Nor does the Ichneumon usurp dominion over the smaller tribes of animals only: it kills the young alligators before they are able to reach the water; and, as fable generally magnifies acknowledged abilities, it is said to enter the mouth of the crocodile when sleeping on the shore, to devour its en-

trails, and eat its way out again. However this may be, it certainly is highly beneficial to the natives in destroying the eggs of that creature, which it digs out of the sand: and for this reason it was worshipped by the ancient Egyptians, who considered every thing that was serviceable as an emanation of the Deity; and paid homage to such, as the best representatives of God below. Indeed, when we consider the number of eggs which the crocodile lays at one time, we have reason to admire the utility of this little animal, as well as its industry, in destroying them; since otherwise the vast multitudes of alligators produced would be sufficient to over-run almost the whole earth.

The Ichneumon, in a state of nature, generally resides along the banks of rivers; but, during inundations, makes to the higher grounds, and often approaches human habitations in quest of prey. It advances cautiously and silently, changing its manner of moving according to its necessities: sometimes it carries its head high, shortens its body, and raises itself on its legs; at others, it lengthens itself, and creeps along the ground; and it is often observed to sit on its hind-legs like a dog, and frequently to dart with amazing velocity on its prey. Its eyes are sprightly, and full of fire; its physiognomy is sensible, its body nimble, its tail long, and its hair rough and various. Its nose is so sharp, and its mouth so small, that it cannot easily seize on large animals: however, it compensates by its courage and activity the defects of nature; it easily strangles a cat, though stronger and larger than itself; and often contends with dogs, which soon learn to dread it as a formidable enemy. Like all its kind, it is furnished with glands in its posteriors, which exude an odorous substance. It takes the water like the otter; and, according to some, can live under it for a considerable time without respiration.

As these animals soon arrive at maturity, their lives are consequently but short. They abound in all the southern parts of Asia, from Egypt to Java; and are also found in Africa, particularly at the Cape of Good Hope. In Egypt, they have been long domesticated; but, in the colder European climates, it is difficult to breed or support them: nevertheless, directed by instinct, they use every precaution for their preservation; they wrap themselves up into balls, hiding their heads between their legs; and in this manner they continue to sleep the greatest part of their time. Seba informs us, that one of these creatures was sent to him from the Isle of Ceylon, which he permitted to run for some months about the house. It proved heavy and slothful by day, and often could not be awaked even by a blow; but it made amends for this inactivity by its nocturnal diligence, smelling then about, without either being wholly tame or wholly mischievous. It climbed walls and trees with great facility; and appeared extremely fond of spiders and worms, which, from their resemblance to serpents, it probably preferred to its natural food. It was also particularly fond of scratching up holes in the ground; and this circumstance, added to its wildness and uncleanness, induced our naturalist to smother it, in order to preserve it in spirits for his museum.

ICHNEUMON, INDIAN. The Indian Ichneumon is about the size of the ferret, being about twenty-seven inches long. The nose, which is pretty sharp, is covered with short hairs of a reddish brown

brown colour; the eyes are bright and sparkling; and the ears are small, round, and so thinly covered with hair, as to disclose the colour of the flesh. The top of the head, the neck, back, sides, and tail, are clothed with pretty long stiff hair, partly brown and partly dusky; the hair on the throat and belly is shorter, and brownish, without any mixture; the legs, which are short, are dusky or black; and there are five toes on each foot.

One of these animals was lately brought over to England. It sometimes crept on its belly, after the manner of a serpent; and, at others, it raised its head, and appeared to walk on its legs, and to contract its body. It sometimes rested on its hinder legs; and, when incensed, erected its bristles in a surprising manner. It was suffered to run about the house, and was very serviceable in clearing it of rats and mice.

Edwards mentions an Egyptian Ichneumon, measuring forty-two inches, which fell under his inspection. With regard to shape and colour, it resembled the former, except that it had a small tuft of hair at the extremity of the tail; from which circumstance he seems inclined to believe that they were of a different species, though it is more probable they were only varieties of the same species.

ICHNEUMON FLY. In the Linnæan system, this is a genus of the hymenoptera class of insects, comprehending no fewer than seventy-seven species; the distinguishing characters of which are these: the mouth has jaws without a tongue; the joints of the antennæ are more than thirty; the abdomen is generally petiolated; and the sting is protruded from a cylindric bivalve sheath.

Though there are many different kinds of this insect, the most formidable, as well as the best known, is the common Ichneumon with four wings like the bee; a long slender black body; and a three-forked tail, consisting of bristles, of which the two exterior are black, and the central one is red. This fly receives its name from the little quadruped so destructive to the crocodile, to which it bears a strong similitude in its courage and rapacity.

The instrument with which the Ichneumon Fly is furnished, though apparently feeble and slender, is nevertheless endued with great power and efficacy: there is scarcely any substance which it cannot pierce, and it is seldom unemployed. It is the weapon of defence, as well as that of attack; and assists the female in depositing her eggs wherever she thinks proper to lay them. As it is an appendage principally employed for the latter purpose, the male is totally unprovided with it; while the female uses it with great force and dexterity, brandishing it when caught from side to side, and often wounding her captors.

All the flies of this tribe are produced in a similar manner; and owe their birth to the destruction of some other insects, within whose bodies they have been deposited, and on whose vitals they have preyed till they have arrived at maturity. There is no insect whatever which the female will not attack in order to lodge her eggs in its body: the caterpillar, the gnat, and even the spider itself, so formidable to others, is often made the unwilling support of this destructive progeny.

About the middle of June, when other insects are found in great abundance, the Ichneumon is seen flying busily about, seeking proper objects whereon to deposit her race. As there are various

species of this fly, so they seem endued with different appetites: some place their eggs within the aurelia of a nascent insect; others deposit them within the nest which the wasp has curiously contrived for its young; and, as both are produced at the same time, the offspring of the Ichneumon not only devour the young wasps, but the whole supply of worms which the parent had carefully provided for their support. However, the greater number of the Ichneumon tribe settle on the back of the caterpillar, darting at intervals their stings into its body; and at every effort they deposit an egg, while the wounded animal appears but little sensible of the injury it has sustained. In this manner they leave from six to a dozen eggs within the spongy substance of the reptile's body; and then fly off, in order to commit farther depredations. In the mean time, the caterpillar thus irreparably injured seems to feed as voraciously as before, without any abatement of its usual activity; and, to appearance, is not at all affected by the internal enemies which are hastening its destruction in their darksome abode. But they soon burst from their egg state, and begin to feed on the substance of their prison: as they grow larger, they require a greater supply; till at last the animal, by whose vitals they are nourished, being no longer able to support them, dies a mere skeleton. It frequently, however, happens, that it survives their worm-state; and in that case they change into a chrysalis, inclosed in the caterpillar's body, till the time of their delivery approaches, when they burst their cells, and fly away.

The Ichneumon Flies, though terrible to the insect tribes, are nevertheless of the most essential service to mankind. The millions of insects which they destroy in the course of a single summer are beyond conception; and, without such animals, the fruits of the earth would vegetate only to furnish a banquet for the insect race, and the nobler ranks of animated nature be reduced to the utmost distress.

ICHNEUMON WASP. An appellation given by the old writers to that species of small, slender-bodied Wasp, frequently found about mud-walls and dry banks. It is extremely different from the insect properly called the Ichneumon, being in reality a true Wasp, mottled with black and yellow, after the manner of the common kind.

ICHTHYOCOLLA PISCIS. A large fish of the sturgeon kind, from which the drug called isinglass is made. See **ISINGLASS FISH**.

ICTERUS. A name commonly given to the jaundice-bird, belonging to the *turdus* kind.

ICTERUS, INDIAN BLACK-HEADED; the *Oriolus Melanocephalus* of Linnæus. This bird is about the size of the thrush; the bill is of a brownish white or dirty flesh-colour; and the head and under-side of the neck are black. The whole body, the covert-feathers of the wings, and the greatest part of the tail, are of a fine bright yellow hue; the greater quill-feathers are black, with yellow edges; and on the upper part of the ridge of the wings there is a slight mixture of yellow and black. The tail is composed of twelve yellow feathers of equal lengths, the two middlemost having each a transverse black bar, about an inch broad, at their tips; the legs and feet are of a dull blueish black colour; there are four toes on each foot; and the claws are black, and pretty strong. This curious bird was first figured and described by Edwards, who says that it was imported from Bengal.

JEAN-

JEAN-CAPELLE. An appellation given by some naturalists to the Faber Indicus, or Indian Doree of authors; more expressively named by Artedi the Zeus with a bifid tail.

JECARINUS PISCIS. A name given by Gaza, and some other ichthyologists, to the fish more commonly called the Hepatus Piscis; and, by some, the Jecur Marinum.

JENDAYA. A Brazilian bird of the paroquette kind, about the size of the blackbird. The beak and legs are black; the back, wings, and tail, are of a blueish green colour; the tips of the wings are blackish; and the head, neck, and breast, are of a pale yellow hue, with an admixture of orange.

JENTLING. A fish caught in the Danube, and several other German rivers; called by the natives Scheat, Jent, and Koppen; and, by Gesner, Capito Cæruleus, the blue chub.

JERBOA. A genus of animals with two cutting-teeth in each jaw, two very short fore-legs, two very long hind-legs resembling those of cloven-footed water-fowl, and a very long tail tufted at the extremity. There are several species.

JERBOA, EGYPTIAN; the *Mus Jaculus* of Linnaeus. This species has dark full eyes, long whiskers, and broad erect ears. It is about the size of a large rat; the head somewhat resembles that of the rabbit; and there are two cutting-teeth in each jaw. The tail, which is about ten inches long, is terminated by a tuft of black hair; the tip of which is white, but the rest short, brown, and rough. The head, back, sides, and thighs, are covered with long soft hairs, ash-coloured at the bottom, and of a pale tawny hue at the points; and the breast and belly are whitish. But the legs of this animal particularly merit attention: the fore-legs, which are not more than an inch long, have each five toes, the inner or thumb being hardly visible, but that, as well as the rest, is furnished with a sharp claw; while the hinder legs are two inches and a quarter long, covered with short hair, and exactly resemble those of a bird, containing each only three toes, all furnished with claws, of which the middlemost is the longest.

This animal inhabits Egypt, Barbary, Palestine, and the deserts between Baffora and Aleppo. It is as singular in its motions as in its form: it always stands or walks on its hind-legs only; while its fore-paws, like those of the squirrel, perform the offices of hands, and convey its food to its mouth. When disturbed or pursued, it often springs six or seven feet high from the ground; and moves so very swiftly, that scarcely any other quadruped is able to overtake it. It is a lively and inoffensive creature; feeds entirely on vegetables; and burrows in the ground like the rabbit.

In the year 1770, two of these little animals were exhibited in London, which burrowed almost through the brick wall of the room in which they were confined. They left their dormitories at night, and roved abroad in quest of food they generally slept, rolled up like a ball, in the day-time; and, when touched, emitted a plaintive, feeble note.

These creatures frequently constitute some part of an Arabian banquet. In that country they are called Damian Israel, or the Lamb of Israel: and Bochart displays great ingenuity and erudition in endeavouring to prove that the Jerboa is the Saphan of Holy Writ.

JERBOA, SIBERIAN. This species has very long

whiskers; and long, narrow, transparent ears. Each of the fore-feet has five toes; and each of the hind three pointing forwards, and a fourth behind, about an inch above the heel. The upper part of the body is of a tawny colour, the lowest being whitish; and in the shape of its body, legs, and tail, it perfectly resembles the Egyptian Jerboa. It inhabits Siberia and Tartary; and is also found in Barbary and Syria, and even as far as India. It is extremely active in its disposition, and more expert in digging than the rabbit itself. When pursued, and unable to escape through swiftness, it instantly makes a hole in the ground, in which it sometimes buries itself deep enough to find security before its enemies can come up with it. In some places, the burrows formed by these animals are so numerous as to render travelling dangerous, the horses frequently stumbling into them unawares.

These creatures are extremely provident: they cut grass, leave it in little heaps to dry, and carry it afterwards into their burrows, where it not only supplies them with food, but renders their habitations warm for their young during the rigours of winter. They are easily tamed; and, when confined, do not refuse animal food, though in a state of nature they subsist wholly on vegetables. When confined to any particular place, they always seek the warmest corner; and generally prognosticate the approach of bad weather by wrapping themselves up in whatever warm materials they can find.

In a wild state, they become the prey of all the lesser rapacious animals. They breed often during the summer; and probably bring forth eight at a time, as the female is furnished with as many teats. They seem to pass the whole winter without nourishment. About Astracan, they sometimes make their appearance in a warm day in the month of February; but return to their holes whenever they feel the effects of the cold.

JERBOA, CAPE. The length of this species, from the nose to the tail, is upwards of fourteen inches; the tail itself is near fifteen inches long; and the ears are nearly three. The head is short and broad; the eyes are large; and the whiskers are full and long. The fore-legs are short, and furnished with five toes on each; and the hind-legs, which are long, have four toes a piece. The body is of a tawny colour above, and cinereous below, mixed with long hairs pointed with black; and two-thirds of the tail are tawny, the rest being black.

This species inhabits the lofty mountains to the north of the Cape of Good Hope: the Hottentots call it *Aerdmannetje*; and the Dutch Springen Haas, or the jumping hare. It is very strong for its size, and sometimes leaps twenty or thirty feet at a bound. When feeding, it sits upright, with its legs extended horizontally, and its back bent. It carries its food to its mouth by means of its fore-feet; and likewise burrows with them more expeditiously than any of its kind.

JERBOA, INDIAN. This animal has a slender nose, and large prominent eyes; its ears are broad, erect, semipellucid, and about an inch and a half long, with a tuft of hair between them; and there are two slender canine teeth and two cutting ones in each jaw. It has four long slender toes, and a distinct thumb on each foot; and the claws, which are sharp-pointed, are all attached to the skin, except those of the two interior toes of the hind-feet. The hair on the legs and feet is short, white, and thinly scattered; and the tail is almost naked, that

part next the body being round and scaly like that of the rat.

This species, which is a native of India, is about six inches long; and its hair, which is soft and downy, is cinereous mixed with tawny.

JERBOA, TORRID. This creature has long whiskers, naked open ears, and four toes on each of the fore-feet; the hind-feet, which are as long as the body, are thick, strong, and thinly haired, with five toes on each; the tail, which is about the length of the body, is very thin of hair; the upper part of the body is yellow; and the lower is white.

This species is no larger than a common mouse; and, according to Linnæus, the only naturalist who mentions it, is found only in the torrid zone.

JESUS. An appellation given by the natives of Dantzic to the fish called by Gesner and others the blue chub or capito cæruleus.

IGNAVUS. A term used by some authors to express the creature commonly called the sloth in England.

IGUANA. An animal of the lizard kind, of which there are several species.

The common Iguana is about five feet long; the body is as thick as a man's thigh; the skin is covered with small scales like those of a serpent; and the back is furnished with a row of erect prickles, resembling the teeth of a saw. The eyes seem to be but half opened, except when the creature is irritated, and then they appear large and sparkling; both the jaws are full of very sharp teeth; and its bite is dangerous, though not venomous. The male has a skin depending from the throat, which reaches down to the breast; and, when provoked, the Iguana puffs it up like a bladder. The female is considerably less than the male: the former is green, and the latter ash-coloured.

The flesh of these animals may be regarded as the greatest delicacy of Africa and America. The sportsmen of those climates hunt the Iguana in the same manner as the Europeans do the pheasant or the hare. At the beginning of the vernal season, when the great floods of the tropical climates are dried up, and vegetation starts into universal verdure, the hunters sally forth with a noose and a stick, along the sides of the rivers, in order to catch the Iguana. This animal, though apparently formed for attack, is one of the most innocent in nature, living among trees, or sporting in the water, without ever offering to offend; there, having fed on the flowers of the mahot, and the leaves of the mapore, that fringe the banks of the tropical streams, it reposes on the branches of such trees as overhang the water. On land, the Iguana is swift of foot; but, when once in possession of a tree, it seems conscious of the security of its situation, and never offers to stir unless roused: hence the sportsman has no great difficulty in finding it, and as easily fastens his noose round its neck. If its head be reclined in such a manner that the noose cannot readily be fastened, by striking the animal with a stick on the nose, it lifts up its head, which in some measure assists the operation; and in this way it is dragged from its protecting tree, and killed by repeated blows on the head.

About the month of May the females proceed to the sea-side, in order to lay their eggs, the males accompanying them. The number of their eggs is from thirteen to twenty-five, but they are not all laid at once: they are as large as those of the pigeon; their shells, which are white and soft, con-

tain no white; and never become hard by boiling. The French pretend that they are much better tasted than those of pullets; and that they are proper to be mixed with all sorts of sauces. These eggs are laid in the sand; and, after being carefully covered over, are left to be hatched by the genial warmth of the sun.

IGUANA OF SURINAM. This species, which has a large skin under the throat, and a row of teeth or thorns on the upper part of the body, resembles the common Iguana in shape and colour; but differs from it in having prickles on the tail, and wrinkles or folds in the bag under the throat. The back and sides of the belly are brown mixed with blue; and the neck is sprinkled with blackish spots. Above the sides the colour is more bright; and the whole trunk of the body is covered with very thin scales. The thighs, legs, and feet, are of a dull blue colour; and the toes, which are of a chestnut hue, are armed with sharp crooked claws.

IGUANA OF CEYLON. This animal has a large, thick head, with warts or tubercles over the eyes; the forehead is covered with blue scales; and the eyes are large and sparkling. The ears are fringed with small eminences, which exhibit the appearance of eye-lids; the jaws are armed with small teeth; and underneath there are prickly scales of a bright blue colour. The upper part of the body is covered with large scales, encircled with broad whitish streaks; and the belly is of a very pale blue colour.

This creature can erect and depress the row of spines on its body at pleasure: these spines are of a pale blue colour, and reach along the back to the tail. The female is furnished with a double row of spines, which reach as far as the thighs, and then disappear.

IGUANA OF FORMOSA. The head of this species is variegated with scales of bay, brown, grey, and cinereous. The scales under the body are of a dusky grey colour; but the bag under the throat, the hinder thighs, the paws, and the tail, are encircled with large bright grey streaks; and the forepart of the bag under the throat, as well as the top of the back, are armed with large prickles, which on the latter reach to the tail. The flesh of this animal is esteemed very delicious.

Formosa affords another variety of the Iguana, of an inferior size, and with two rows of teeth running from the top of the neck to the middle of the tail. The bag under the throat is connected to the lower jaw; and that, as well as the head, belly, legs, feet, and tail, are of a deep blue colour; and the back is covered with thin small scales of a dun grey.

IGUANA OF NEW SPAIN. This species, like the other congenerous animals, is armed on the back with large teeth or prickles, covered with small thin scales of a rhomboidal figure, of a greyish and reddish colour undulated with bay brown. The head, and the bag under the throat, are a bright grey, the latter being marbled with black; the tail is thick at the root, long, and slender at the end; the jaws are furnished with small teeth; and on the side of the lower, beneath the ear, there is a sort of white button resembling a flattened wart.

JIBOYA. A monstrous serpent inhabiting Java and Brazil, which Legaut affirms he has seen fifty feet long: nor is this gentleman singular in his report, many of the missionaries corroborating his assertion; and, as a farther proof, we have the con-

current testimony of historians. However, the largest animal of this kind imported into Europe was only thirty-six feet long; but it is probable that much larger have been seen and destroyed before they were judged sufficiently curious to be sent so far for the inspection of the naturalist. The teeth of this serpent are small in proportion to its size; nor does the creature use them, even when it seizes the smallest prey. It lies in wait for wild animals near some path, throws itself on them, and encircles them so closely as to break all their bones; then moistening their whole bodies over with its saliva, renders them fit for deglutition, and thus swallows them entire.

JHYA. An American animal of the otter kind, called also Carigueibeiu. It is about the size of the spaniel, and of the amphibious kind of quadrupeds. The head, which is round, resembles that of the cat, but the nose is somewhat pointed; the eyes are black; the ears are roundish, and placed very low, as in the otter; and it has a sort of beard or whiskers, composed of a few stiff hairs. The feet are all furnished with five toes, the interior being the smallest: the hair is soft, short, and black, except on the head, where it is brown; and under the throat, where there is a yellow spot. This creature feeds on fishes, and some other animals; and its voice resembles that of a puppy.

ILIVILIHU. An appellation given by the natives of the Philippine Islands to a very remarkable bird common in that country. Ornithologists generally distinguish it by the name of the *coturnix parvula montana*, the small mountain quail: and indeed, in every essential character, it resembles the quail; but its colours are more beautifully variegated; and it is smaller than the sparrow. It commonly resides in mountainous places; and its flesh is esteemed a peculiar delicacy.

IMAGO. A term used by Linnæus to express the third state of insects, when they appear in their proper shapes and colours, and undergo no more transformations.

IMBER. A name sometimes given to that species of goose called also the ember and the fluder.

IMPERIAL CROWN. A species of the *Voluta* genus of shells with a sharp clavicle.

INK-FISH. See **CUTTLE-FISH**, and **SEPIA**.

INSAG. An appellation given by the natives of the Philippine Islands to a species of parrot common in the sylvan parts of that country. Its colours are the most beautiful in nature; the body being a very vivid green, and the head a fine florid red.

INSECTS. A class of animals so called from the Latin *In*, and *Seco*, I Cut; because, in many of these tribes, the body seems to be cut or divided into two. The distinguishing characters of insects are these: their bodies are covered with a sort of bony substance instead of skin; and their heads are furnished with antennæ, called horns.

Among the infinite variety of objects which nature exhibits to the inspection of the curious, Insects, though the smallest in the scale of being, are certainly not the least interesting. Though their minuteness may, at first view, give colour to an idea of their insignificance; and though the untutored part of mankind may regard them as the result of chance, or the refuse of nature; he who views them with due attention, and reflects on the art and mechanism of their structure, where such a number of vessels, fluids, and movements, are collected into one point, frequently invisible to the

naked eye; cannot but acknowledge them to have been formed by the hand of unerring Providence, and perfectly adapted for that sphere in existence which they are destined to fill.

Those animals which chiefly attract our notice by their magnitude, are but the smallest part of animated nature: the whole earth swarms with living beings; every plant, grain, and leaf, supports the lives of thousands. Vegetables seem, at first sight, to be the parts of organized nature which are produced in the greatest abundance; but, on a minuter inspection, we find each supporting numberless creatures, which fill up the various gradations of youth, vigour, and old age, in the space of a few days, or a few months at most. Vegetables are generally produced but once in a season; but, with respect to insects, especially of the smaller kinds, a single summer suffices for several generations: these therefore would multiply in greater abundance than the plants on which they subsist, were they not destroyed by other animals, and not unfrequently by each other. Spiders feed on flies; birds devour spiders; and birds, in their turn, are the food of man, as well as of every beast of prey. This wise disposition of instincts implanted in every class of animated nature, prevents the earth from being overstocked with any particular kind, and preserves a just balance between the numbers and necessities of every tribe.

An Insect may be defined as a little animal without blood, bones, or cartilages; furnished with a trunk, or else a mouth, opening lengthwise; with eyes destitute of coverings, and lungs opening on the sides. This definition will comprehend the whole class of Insects, either with or without wings; either in their caterpillar or butterfly state; either produced in the ordinary method of generation between male and female, or from an animal that is itself both male and female, or from the same animal cut into several parts, and each part reproducing a perfect animal.

Hence it will appear, that in this class of nature there are numerous distinctions, and that no general description will serve for all. Almost every species has its own distinct history; and exhibits manners, appetites, and modes of propagation, peculiar to itself. In the larger ranks of existence, two animals, nearly resembling each other in form, will be found to have a similar history; but here, Insects almost entirely similar will often be found perfectly dissimilar, as well in their manner of bringing forth and subsisting, as in the changes which they undergo during their very limited lives. Thus, as this class is prolific beyond computation, so are its varieties multiplied beyond the power of description. To enumerate all the different species of flies or moths, would be a fruitless attempt; but to give a history of all would be utterly impracticable. So various are the appetites, the manners, and the lives, of this humble class of beings, that every species requires its distinct history.

An exact plan, therefore, of nature's operations, in this minute set of creatures, is not to be expected: and yet such a general picture may be given, as is sufficient to evince the protection which Providence affords its smallest as well as largest productions; and to display that admirable circulation in nature, by which one kind of beings finds subsistence from the destruction of another, and by which life is continued without a pause in every part of the creation.

In a cursory inspection of the insect tribes, the first

first animals which present themselves are those that are destitute of wings, and appear crawling about on every plant, and every spot of earth examined with any degree of attention. Some of these never acquire wings at any period of their existence, but are destined to creep on the vegetables or spots of earth where they are stationed for their whole lives: on the contrary, others are candidates for a happier existence; and only wait for their nascent wings, when they may be said to arrive at their most perfect state. Those which are never furnished with wings, but creep about till they die, may properly be considered as constituting the first class of insects: all these (the flea and the wood-louse excepted) are produced from eggs; and, when once they break the shells, never experience any farther change, but continue increasing in size till the expiration of their lives. Thus the louse and the spider are produced from an egg; and, after exclusion, do not undergo any farther alteration, but, like the chicken or the duck, remain invariably the same from their birth to their dissolution.

The second order of Insects is composed of such as have wings; but which, when produced from the eggs, have those wings so cased up as to be concealed: this covering up of the wings does not prevent the creatures from running, leaping, and moving, with their natural celerity; but, when the cases burst, and the wings have the power of expansion, all the motions of the animals become more extensive, and they arrive at full perfection. In this manner the dragon-fly, the grasshopper, and the earwig, have their wings at first confined; but, when the skins burst, they are immediately expanded, and the animals pursue the purposes for which they were produced.

The moth and the butterfly kind, which may be considered as the third order of Insects, have all four wings, each covered with a mealy substance of various colours, which is easily rubbed off; and, if examined by the microscope, will appear like scales, with which the wings are elegantly embroidered. These Insects also are produced in a manner peculiar to themselves: each of them is first hatched from an egg, from whence issues a caterpillar that often sheds it's skin; and, after having divested itself, for the last time, of it's exuviae, assumes a new covering, called a chrysalis, in which it continues hid till it comes forth in it's winged state.

The fourth order of Insects proceeds from those which, though winged, originate from worms, and not from caterpillars; yet undergo changes similar to those of the butterfly tribe. Each is first excluded from the egg like a worm, and then becomes a chrysalis. In some, the wings and legs are seen; in others, the animals are quite detached from the cones in which they are concealed: but all at length burst their prisons, and come forth perfect; some furnished with two, and others with four wings. The wings of all these differ from the butterfly and moth kind, in being destitute of mealy scales. In this class may be ranked the numerous tribes of gnats, beetles, flies, and bees.

To the four orders of Insects already enumerated, may be added a fifth, consisting of a numerous tribe of modern discovery, to which naturalists have applied the name of Zoophytes. For the production of these, the ordinary forms of generation are unnecessary; they may be propagated by division: some of them, though cut into a hundred

parts, will still retain the vital principle in each; and every individual part will in a short time produce a perfect animal. These indeed appear to be a set of existences placed between animals and vegetables, and formed to connect animated and insensible nature: to this class belong the polypus; the earth-worm, and all the varieties of the sea-nettle.

Having exhibited a general distribution of Insects, we shall next enquire into some of the most distinguishing characters and qualities of the whole race.

Some Insects attract our notice by the beauty of their colourings: butterflies, cantharides, and all the shining flies, exhibit sufficient proofs that Nature has not been sparing in her embellishments on this tribe of beings. The same wisdom which has rendered some Insects beautiful, has also given others a sufficient share of strength and armour for their necessary defence, or for the means of procuring their food: though they do not always catch what they lie in wait for, or avoid what is noxious, they are all provided with what is most essentially adapted for those purposes. The common leech is furnished with strong teeth; the wasp and the bee have powerful stings; and some snails are provided with such strong shells, that they are defended from external injuries, at the same time that their locomotive powers are not abridged. The most delicate Insects, such as caterpillars, are furnished with hairs, which serve to break the force of the shocks they are liable to receive, as well as to weaken the blows that might otherwise injure them. The generality of Insects are quick in flight to avoid impending danger; some by the assistance of their wings; and others by means of threads, which they can throw out, and hang by till the danger is past: others again, like the grasshopper, are enabled to leap to a very considerable distance. And thus all, however minute, have some means by which they consult their own preservation.

Nor is our admiration less excited by a review of the various organs by which some animals are assisted to live, and the instruments they use, according to their various professions. The silk-worm is excellently formed for spinning, having two distaffs, and fingers to draw out the thread; the spider can fabricate nets and webs, and is therefore provided by nature with implements for that purpose; the wasp, by means of two small saws which spring from the angles of the mouth on each side, procures what materials are necessary for the construction of it's cell; while bees are furnished with a variety of weapons indispensably necessary in the formation of their combs and the collection of their honey: the trunk of the bee, indeed, is more wonderful than that of the elephant; the latter is only adapted to the private convenience of the animal; but the trunk of the bee is fitted for extracting honied balsam even from herbs of the most deleterious nature.

The structure of the eye in Insects is remarkably different from that of other creatures in a variety of respects: it is defended by it's own rigidity against external injuries; and it's cornea is all over divided into lenticular facets, which, viewed by the help of the microscope, appear like a beautiful piece of lattice-work; each opening in it being of such a nature, that, when looked through, objects appear inverted. This mechanism alone supplies the place of the crystalline humour, which is ne-

ver found in Insects. Spiders have generally eight eyes; and flies may be said to have as many organs of sight as there are perforations in the cornea, or external covering of the eye. Animals in general are obliged to turn their eyes different ways to behold objects; but those of flies are so contrived, as to admit every neighbouring object at once. In order to keep their eyes clean, they are provided with two antennæ or feelers: some, however, are of opinion, that they cleanse their eyes with their fore-legs as well as feelers; nor does this conjecture seem ill founded, when we consider that in some sorts, particularly the flesh-fly, the feelers are too short to answer this purpose, and therefore the legs alone can supply this defect. Nor does the mechanism of their feet less deserve our attention. The hind-legs of amphibious Insects, such as water-beetles, which are sometimes obliged to live on land as well as in the water, are formed with commodious flat joints; while gristles, which are placed at the extremity of the limb on each side, supply the place of oars. In those Insects whose motions are performed by leaping, such as the grasshopper and the cricket, the legs are strong and brawny; those, on the contrary, which use their claws in perforating the earth, have such members adapted, by their strength and swiftness, for that purpose. There are even some Insects which transport themselves from one place to another in a manner wholly unknown; those generated in stagnant waters are often found in new pits and ponds, and sometimes on the tops of houses and spires; and spiders frequently soar with their webs to the summits of the most lofty edifices.

Such Insects as are furnished with wings, have tendons to expand and strengthen them: those which are provided with four, as the ephemera fly, use the uttermost pair rather as cases to defend the interior wings, than as auxiliaries in flight. When the Insect is at rest, the inner wings are generally closed up; nor is it without some efforts that the little animal is able to unfold them. Such Insects as have only two wings, are supplied with two little balls, or poisers, joined to the body under the hinder part of each wing, which serve to keep them steady, and in some measure counteract the changes of the air, which at every variation might carry them off in it's current. If one of the balancers be cut off, the Insect will soon fall to the ground; but if both of them be cut away, it will still continue to fly, though at the direction of every breeze.

Almost all sorts of Insects are generated, like larger animals, from eggs; and these are at first inclosed in a single or double covering, which opens when the animal is old and strong enough to pierce through it. When the young break their coverings at their first ingress into the world, the parents are said to be viviparous; as for instance, the millepedes: when the old ones bring forth their young in a covering where they are doomed to remain some time, like the silk-worm, they are said to be oviparous.

Insects of the oviparous kind always deposit their eggs in proper places, where they are hatched by a requisite degree of heat. No Insects abandon their eggs to chance; nor are they ever mistaken in laying them in such situations where they may receive proper nourishment as soon as they are hatched. Those caterpillars which feed on cabbages, are never found on willows; nor such as feed on willows, on cabbages. The moth delights

to lodge among woollen stuffs, or papers; but never takes up it's residence on plants, nor in mud. Hence it is evident, that instinct, not chance, directs their choice.

When some of these eggs are hatched, the young appear in their perfect and permanent shape; but the greater number of Insects pass through different states, and successively assume the figure of two or three animals which have no resemblance to each other. From the egg of the gnat proceed divers animalcula, which pass through three different states: in the first place, they live in the water; then they change to amphibious animals; and, lastly, they become denizens of the sky.

Summer is the time suited to the pleasures of Insects: few of them live more than a single season; and some only a few hours. Such, however, as are long-lived, take the necessary precautions to provide for their safety and subsistence during the winter, fixing on the most convenient situations for spending that interval, and laying in a sufficient quantity of food. But the greatest number sleep during the continuance of the cold season, and therefore do not stand in need of provisions. Some caterpillars, for instance, having fed during the summer, retire, at the approach of winter, to places of security; where spinning threads like cobwebs, they suspend themselves, covered with fictitious coats, which at once serve to keep them warm and to guard them from external injuries: in this torpid state they continue till the returning sun calls them to new life; then they expand their wings, and seem wholly employed in propagating their kind.

There are some Insects, however, which lay up provisions for the winter; of which the bee, and the ant of foreign countries, are remarkable instances. The wasp, the hornet, and the wild bee, are no less assiduous in laying in a proper stock of food, and fitting up commodious apartments: but this is wholly for the sake of their young; for they desert their nests in winter, leave their offspring furnished with every convenience, and retire to some other situations, where it is probable they live without food.

But notwithstanding the admirable habits and instincts observable in the Insect tribes, it must be confessed, that in every respect they deserve to be considered as the last and lowest rank in animated nature. As, in mechanics, the most complicated machines are required to perform the nicest operations; so, in anatomy, the noblest animals are most variously and wonderfully made. Of all living existences, man exhibits the most astonishing variety in his internal conformation; quadrupeds next succeed; and other animals follow in proportion to their powers and excellencies. Insects, of all others, seem to be the most imperfectly formed; many of them will live a considerable time after being deprived of those organs which are essentially necessary to life in the higher ranks of nature; and the caterpillar will continue to exist when deprived even of it's heart and lungs.

But it is not from their conformation alone that Insects are inferior to other animals, but from their instincts also. It is true that the ant and the bee present us with very striking instances of assiduity and foresight; but they fall very short of those proofs of sagacity displayed by the hound or the horse. A bee, when separated from the swarm, is totally helpless, inactive, and incapable of giving the smallest variations to it's instincts: it has but

one single method of operation; and, if taken from that, can have recourse to no other. In the pursuits of the hound, there appears something like choice; but, in the labours of the bee, the whole has the semblance of necessity or compulsion.

Another argument of the imperfection of Insects may be drawn from their amazing numbers. It is a rule which universally obtains, that the nobler animals are slowly produced, and that Nature acts with a kind of dignified œconomy; while the meaner births are lavished in profusion, and thousands are produced merely to supply the necessities of the more favourite objects of creation. All other animals are capable of some degree of education: their instincts may be suppressed or altered; the dog may be taught to fetch and carry; the bird to whistle a tune; and the serpent to dance: but the Insect has only one mode of operating; no arts can divert it from its instincts; and indeed its whole life is too short for receiving any portion of instruction.

If Insects are regarded as bearing a relation to man, and as assisting him in the pleasures and necessities of life, they will, even in this respect, sink in the comparison with the larger tribes of animals. It is true, that the bee, the silk-worm, the cochineal-fly, and the cantharides, are of the most essential service; but how many others of this class are either noxious, or wholly useless! Even in the most cultivated countries, where injurious animals have been reduced by repeated assiduity, the Insect tribes still maintain their ground, and are often unwelcome intruders on the fruits of human industry. But, in more uncultivated regions, their annoyances and devastations are unbounded. What a miserable life must the Laplanders lead, as well as the natives of some parts of America, where a candle is no sooner lighted, than the Insect-swarms instantly extinguish it; where the inhabitants are obliged to smear their bodies and faces with tar, or some similar composition, to protect them from the punctures of these minute enemies; and where, though millions are destroyed, millions constantly succeed, and render life still more uncomfortable than the climate itself naturally would, with all its attendant horrors!

INSECT, MUSK. A term used by some naturalists in a vague sense, to express the capricorn, or musk-beetle: however, there are other Insects which smell as strongly of that perfume; particularly a small kind of bee, which frequents the ranunculus and dandelion; and a hexapode worm, which feeds on the gallium luteum.

INTESTINA. A genus of worms in the Linnæan system; the characters of which are, that they are simple, naked animals, without limbs; some pierced with lateral holes, or a kind of pores; and others entirely imperforated. The subordinate genera of this class of worms are the gordius, ascaris, lumbricus, fasciola, sipunculus, hirudo, and myxine, comprehending twenty-four different species.

JONÆ PISCIS. An appellation given by many naturalists to the common shark, the *Canis Carcharius* of Linnæus. This name seems to have been adopted from an opinion that this fish swallowed up the prophet Jonas; but there are many objections against this conjecture.

JOPPA WHELK. A name sometimes used to express a species of the buccinum.

JOSO. A small marine fish of the sea-gudgeon or rock-fish kind, common in the Mediterranean, and called *gobius albus* by some ichthyologists.

IPECA GUACA. A Brazilian bird of the duck kind. It is of a middle size between the duck and the goose; and is generally kept tame, as well for the sake of its eggs as its flesh.

IPECATI APOA. A Brazilian species of duck, to which the Portuguese have given the name of Pata. It is nearly of the size of the goose, but exactly resembles the duck in shape and figure.

IPECU. A Brazilian bird of the woodpecker kind, called by Ray *Picus varius Braziliensis*. It is about the size of the common pigeon: the beak is straight, very sharp, and hard; with which it pierces trees, in the same manner as the congenious European birds.

IPERAQUIBA. An appellation given by some authors to the remora or sucking-fish.

ISABELLA. A name given by the French conchylogists to the beautiful pale brown voluta, so much esteemed by some collectors of shells.

ISARUS. A term used by the ancients to express the chamois-goat.

ISATIS. An animal of the fox kind, called by some authors the arctic fox. Its hair, which is softer than that of the common fox, is sometimes white, and at others brown, and even blue; but is much longer in winter than in summer, which indeed is usual with animals peculiar to cold climates.

The Isatis is very common in all the hyperborean countries bordering on the Icy Sea, and is seldom seen but in the coldest climates. It is principally found in the mountains and naked regions of Norway, Siberia, and Lapland. In the shape of its body, and the length of its tail, it resembles the fox; but, in the figure of its head, and the position of its eyes, it is more like the dog. Not being able to burrow on account of the frost, it lives in the clefts of rocks; and two or three pair generally inhabit the same hole. It barks like the dog; and generally goes with young nine weeks.

These animals, which possess all the cunning of the common fox, prey on young geese, ducks, and water-fowl, before they are fledged. In Greenland, they are compelled by necessity to feed on berries, shell-fish, or any substances which the sea casts up; while their principal food, in the north of Asia and in Lapland, is the lemming, or Lapland marmot. The fur of the Isatis is of no value, unless the creature is killed in the winter season.

ISINGLASS FISH. A species of the accipenser or sturgeon, distinguished from the others by being destitute of the tubercles which appear on the body of the common sturgeon.

These fish, which are caught in great quantities in the Danube from October till January, seldom weigh less than fifty pounds each, and sometimes upwards of four hundred. Their flesh is soft, glutinous, and flabby; but it is sometimes salted, and is then reckoned tolerable food. However, they are principally caught for the sake of that valuable commodity called Isinglass, which they furnish in such abundance, and which is made in the following manner. The skin, the entrails, the fins, and the tail of the fish, are cut into small pieces; and, after macerating for some time in a sufficient quantity of warm water, are boiled over a slow fire till they are dissolved and reduced to a jelly: this jelly is spread on instruments made for the purpose; so that, in drying, it assumes the form of parchment; and, when perfectly dry, is rolled up in that shape in which we meet with it in the shops.

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ITAIARA. A name given by some authors to a Brazilian fish of the turdus kind, more usually known by that of jurun capeba. It's colours are extremely beautiful; and it's flesh is excellently flavoured.

ITCH ANIMAL. A species of acarus, generally found in the pustules of the Itch, and supposed by physicians to be the origin of the disease. When this animalcule is examined by a microscope, it seems to resemble the tortoise; being furnished with six feet, a sharp head, and two small horns at the extremity of the snout. It is very brisk and active; and occasions such an irritation of the part where it is lodged, as to oblige the patient to scratch it.

JUDDOCK. A common English name for the small snipe, called by authors gallinago minima, and in some places the ged and jack-snipe.

JUGULAR FISH. A Linnæan name for a certain order of fishes; the general character of which is, that the ventral fins are placed before the pectoral ones. This order comprehends five genera, viz. the callionymus, uranoscopus, trachinus, gadus, and blennius; including thirty-five subordinate species.

JULIS. A small fish, about three inches long, caught principally in the vicinity of Genoa. The male is very beautifully painted: the back is green; the head is variegated with yellow and red; the lateral lines are broad, serrated, and of a fine gold colour; and the dorsal fin has several large spots of blue and red.

JUNCO. The classical name for the reed-sparrow.

JUPAJUBA. A Brazilian bird resembling the guira tantigina, called also the japu. It suspends its nest, in a very surprising manner, from the twigs of trees, in order to save its eggs and young from serpents and predaceous birds.

JUPATUMA. A name given by some au-

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thors to the American animal more generally known by that of the opossum.

JURUCUA. A species of tortoise found in the Brazils, whose feet are shaped almost like wings, the fore ones being about six inches long, and the hind considerably shorter. The tail is short, and of a conic figure; the eyes are large and black; and the mouth, which is destitute of teeth, resembles the beak of a bird. It is frequently four feet long, and about three broad; and it's ribs, which are fastened to the shell, are eight on each side, the middle ones being the longest. The flesh and eggs of the Jurucua are of a very delicate taste: the eggs are laid in holes on the sea-shore; and, being covered with sand, are hatched by the heat of the sun. A number of whimsical figures generally run in various directions on the shell, the entire ground of which is usually black and glossy.

JURUNCAPEBA. A marine fish of the turdus or wrasse kind, caught among rocks about the shores of the Brazils, and called also itaiara. It is usually five or six inches in length, and about a third part of it's length in breadth; it's mouth is extremely large and wide, and of a somewhat triangular figure; and it's flesh is very delicious.

JURURA. A Brazilian species of tortoise, seldom exceeding ten fingers in breadth, and eight or nine in length. It can at pleasure conceal it's whole body in the shell, or thrust out it's head to the distance of two or three inches: the head is thick and long; the nose is elevated and pointed; the mouth is large; the eyes are black; the feet are furnished with four long claws; the tail is short and pointed; and the skin is rough and scaly. The upper shell is brown, and the lower yellow; and the eggs, which are white and round, are extremely well tasted.

IXALOS. A name given by Greek writers to the creature commonly known by that of the chamois-goat.

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K AALING. A species of starling common in China and the Philippine Islands. It's back, eyes, legs, and beak, are yellow. It is easily tamed; and may be taught to sing, and to imitate the human voice. In a state of nature, it feeds on rice and insects; but, when confined to a cage, will eat bread, and almost any kind of fruit.

KABBOS. An oriental fish of the mustella kind, about two feet long, and destitute of scales. It's general colour is brown; but the snout is much paler than the rest, and spotted with black. The head is of an obtuse figure; and the eyes are placed very near it's extremity.

KAELT FISH. An East Indian fish which somewhat resembles the pike, it's mouth being furnished with a great number of sharp teeth, and having large bright eyes. It's belly and tail are of a purple colour; and it's back is brown. It measures about eighteen inches in length; it swims

with great rapidity; and it's flesh, though hard, is well flavoured.

KANGURU. An animal discovered by our British navigators on the western side of New Holland, and as yet unknown in any other part of the world. Pennant refers it to the opossum kind; while other naturalists seem to consider it as a species of jerboa. It has a small oblong head, shaped like that of the fawn, and tapering from the eyes to the nose; the upper lip is divided; the nostrils are wide and patulous; the upper jaw is longer than the under, and both are furnished with whiskers; the irides are dusky; the ears are erect, oblongly ovated, and covered with short hairs. There are four broad cutting-teeth in the upper jaw; two long lanceolated teeth in the lower, pointing forwards; and four grinders in each jaw. The body increases in thickness to the rump; the belly is convex and large; the fore-legs are very short;

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short; and the hind are almost the length of the whole body. On the fore-feet there are five toes, with large conic, strong claws; and on the hind there are only three. The tail is very long, extending as far as the ears, thick at the base, and tapering to a point; and the hair is soft, and of an ash-colour, but somewhat lighter on the belly than the back. The length of this animal is generally upwards of three feet; and the tail measures nearly thirty inches.

The Kanguru lurks among the unpastured grass which covers the desolate country it inhabits. It feeds entirely on vegetables; and walks wholly on it's hind-legs, using it's fore-feet only for the purposes of digging and carrying it's food to it's mouth. It appears to be extremely timid and harmless, as it flies at the sight of a human creature with prodigious bounds. When in motion, it carries it's tail at right-angles with it's body; and no dog can arrest it's flight. It's flesh is reckoned wholesome and palatable.

KARAGAN. An animal found in Great Tartary, strongly resembling the brant fox; of which it is either a variety, or very nearly allied to it.

KATA, of Syria. A bird of the grouse kind, about the size of the partridge; and, with respect to shape, between that and the pigeon. The bill is of a light colour tipped with black, and short and thick; the legs are white, and covered with feathers on their fore-parts; those of the toes stand forwards; and there is a small spur behind. The plumage round the eyes and the fore-part of the neck is of a light colour, except beneath the throat, where it is black. The breast is of a cinnamon hue, bounded at it's rise and extremity by a black ring; the belly is white; and the back, as well as that part of the wings next to it, are of a mouse-colour, with an admixture of bright yellow, white, and black. The long feathers of the wings are also of a mouse-colour; those on the rump are beautifully variegated with black, white, and yellow; and the tail, which is short, terminates, like that of the pigeon, in two long, narrow, black feathers, exceeding the others about three inches.

During the months of May and June, these birds are very numerous about Aleppo. Their flesh is black, dry, and hard; nevertheless, the Turks reckon it very delicious.

KERMES. Minute animals found in great abundance on ever-greens of the oak kind, and forming excrescences of considerable utility both in the materia medica and the art of dyeing.

The Kermes is properly an insect of the procoll class, and of that genus whose figure resembles a slightly truncated sphere. It is found on a particular kind of the ilex, known by the name of the *ilex aculeata cocciglandifera*, which never rises to any considerable height: it is very common in the more uncultivated parts of Provence and Languedoc; in Spain; and in the islands of the Archipelago, particularly Crete. The peasants make their harvest of these insects from off the ilex at the proper season.

But though the history of this drug is a subject which merits the attention of every naturalist, a number of years have elapsed since it has been examined with any degree of accuracy. De La Hire and Sedileau paved a way to it's investigation by their history of the gall-insect of the orange-tree; but all the advantages which might have been expected to flow from thence, were not soon obtained; nor was the resemblance and the strict

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analogy between the flat and the spherical gall-insects so soon observed as might reasonably have been expected.

When the Kermes has attained it's full growth, it appears like a small shell fixed to the branches of this shrub, of a bright and shining colour resembling that of a ripe plumb, and covered with the same sort of powder which overspreads that fruit: this powder is commonly called the flower of the Kermes.

According as the winter is more or less mild, the harvest of Kermes is proportionably plentiful; and the natives of those countries where they abound, always prognosticate a fine season when the spring has been free from frosts and fogs. It is observed that the lowest and oldest shrubs are always most prolific in these insects; and those produced in maritime countries are invariably found to be larger and finer than such as come from more inland parts.

It is no unusual thing for the natives to have two harvests of Kermes in one year: those of the latter season are smaller and less valuable than those of the first; and are found not only on the branches, but also on the leaves of the shrub; exactly analogous to the custom of all the gall-insects, which leave the branches to feed on the leaves, where their yet tender trunks can find an easy entrance.

The Kermes is of the most essential service in medicine: it is cardiac, desiccative, and astringent; it fortifies the stomach, and prevents abortions. In the art of dyeing, it is of still greater utility; it enters into the composition of the scarlet dye, and affords a most beautiful and permanent tinge.

There are several varieties of this valuable insect, but all agreeing in the two grand characters of beauty and utility. See *Coccus*.

KESTREL; the *Falco Tinnunculus* of Linnaeus. A beautiful bird of the hawk kind, called also the stannel and windhover. The male of this species is about fourteen inches in length, and two feet three inches in breadth. It's colours, at first sight, distinguish it from all other hawks: the crown of the head, and the greater part of the tail, are of a fine light grey hue; and on the lower part of the latter there is a broad black bar, succeeded by white tips. The back and coverts of the wings are red, inclining to purple, and embellished with elegant black spots; and the interior sides of the quill-feathers are dusky, deeply indented with white. The whole under-side of the bird is of a pale ferruginous colour, spotted with black; and the cere and legs are yellow.

The female of this species weighs eleven ounces: her colours are less vivid than those of the male; her breast is of a dirty white hue; and the centre of each feather has an oblong dusky streak pointing downwards.

The Kestrel breeds in the hollows of decayed trees, the holes of high rocks, towers, and ruinous buildings; and lays four eggs, which appear as if deeply besmeared with red, through which a few spots of white are perceptible. It feeds on field-mice, small birds, and insects, which it possesses the faculty of discovering at a vast distance. This bird is frequently observed in the air, fixed to one place, and fanning itself with it's wings; at which times it is watching for it's prey. When falconry was fashionable, the Kestrel was tamed, and trained for catching small birds and young partridges.

KID. A name given to the young of the goat kind. See *GOAT*.

KIDDOW.

KIDDOW. The English appellation for a web-footed fowl common on the British shores; and called in different places the guillemot, the sea-hen, and the skout.

KILCH. The German name for a fish of the albula kind, caught in the lakes of that country. Its flesh is firm, of a delicate flavour, and very little different from that of the ferra.

KILLER. A creature of the cetaceous kind, so called by the fishermen of New England from the animosity it shews to the whale. Though a congenerous animal, it is said to surround the whale, and to attack it with all imaginable fury and violence. Some seize it behind; others attempt it before; till at last the large unwieldy creature is torn down, and affords a lasting provision to its cruel destroyers. So strong are these Killers, that one of them has been known to stop a dead whale which several boats were towing along, and to drag it to the bottom of the ocean.

KIMBULA. A species of crocodile found in the Island of Ceylon, of a very beautiful variegation of colours, being elegantly mottled with black shining spots of a velvet gloss.

KINE. A term by which animals of the cow kind are frequently expressed.

KING FISH. An appellation sometimes given to the opah, a fish of the doree kind. See ОРАН.

KING-FISHER. A genus of birds of which there are various species. Their distinguishing characters are, that the bill is straight, strong, and sharp-pointed; that the tongue is short and pointed; and that the three lowest joints of the exterior toe are connected to the middle one.

KING-FISHER, COMMON; the *Alcedo Ispida* of Linnæus. This bird seems to unite in itself somewhat appertaining to almost every class. It possesses appetites for prey like the rapacious kinds; and an attachment to water, like the birds of that element. It also possesses the beautiful plumage of the peacock, the delicate shadings of the humming-bird, the short legs of the swallow, and the bill of the crane.

The King-Fisher is somewhat larger than the swallow: its shape is clumsy; its legs are very small; and its bill is disproportionably long, being nearly two inches from the base to the tip, the upper chap black, and the lower yellow. But the beauty of this bird's colours amply compensate for the inelegancy of its form: the top of the head, and the coverts of the wings, are of a deep blackish green hue, spotted with bright azure; the back and tail are of the most refulgent azure; the belly is orange-coloured; and a broad mark of the same colour extends from the bill beyond the eyes, near which there is a large white spot. The tail, which is short, consists of twelve feathers of a rich deep blue; and the feet are a reddish yellow.

This is one of the most rapacious little animals that skims the deep: it is continually in action; and feeds on fishes, which it takes in surprizing quantities considering its clumsy form and diminutive size. It is generally seen on the banks of rivers; and, like the osprey, seizes its prey by balancing itself at a certain distance above the water for a considerable space, and then darting on the fish with unerring aim. In a clear day its plumage exhibits an amazing diversity of brilliant colours, while the bird itself remains suspended in the air; and this extraordinary beauty has probably given rise to various fictions.

This species is the Mute Halcyon of Aristotle,

which he describes with unusual precision. After mentioning the particulars of this bird's figure, he subjoins a description of the nest, which appears as fabulous and extravagant as any story the most inventive of the ancients ever delivered. He says it appeared like those concretions which are formed by the sea-water; that it resembled the long-necked gourd; was hollow within; had a very narrow entrance; and that, if ever it overset, the water could not enter: that it resisted any violence from iron, but could be broke with a blow from the hand; and that it was composed of the bones of the sea-needle.

Ridiculous as this description may appear, part of it is founded in truth. With regard to the form of the nest, his account agrees exactly with that of Count Zinanni. Nor are the materials of which Aristotle says it is composed entirely of his own invention: the nest of the King-Fisher is always observed to be strewed with the bones and scales of fishes, the fragments of its food; and those who will not admit it to be a bird which frequents the sea, must not confine their ideas to this climate, but consider, that those birds which inhabit sheltered places in the more rigorous latitudes, may endure exposed ones in milder climates. Aristotle's observations were made in the East; and he admits that the Halcyon sometimes ascended rivers; but it is probable that this was in order to breed; for Zinanni informs us, that in Italy it breeds about the month of May, in the banks of streams contiguous to the sea; and, after the first hatch is reared, returns to lay a second time in the same place.

As this bird has been said to build her nest on the sea, that she might not be interrupted in this task; so she has also been said to possess a charm with which she allayed the fury of the waves: and the poets, indulging the powers of imagination, have dressed the story in all the glowing robes of romance; as may be seen in Theocritus among the Greeks, and Ovid and Virgil among the Latins.

Both Aristotle and Pliny inform us, that the Halcyon is most common in the Sicilian seas; that it sits only a few days in the depth of winter; and that, during this interval, the mariner may sail in perfect security. Hence these were called Halcyon days; and, in after-times, the words were used to express any season of felicity.

Nor do the poets and naturalists of antiquity alone abound in fictions relative to this bird: the historians themselves are not exempt from them. Cicero wrote a long poem in praise of the Halcyon, of which only two lines are extant. Even the Emperor Gordian wrote on the same subject; and the fables which the heathens recorded have been adopted by one of the primitive fathers of the Christian church. 'Behold,' says St. Ambrose, 'the little bird which, in the midst of winter, lays her eggs on the sand by the shore. From that moment the winds are hushed; the sea becomes smooth; and the calm continues for fourteen days. This is the time she requires; seven days to hatch, and seven days to foster her young. The Creator has taught these little animals to make their nests in the midst of the most stormy season, only to manifest his kindness, by granting them a lasting calm. The seamen are not ignorant of this blessing; they call this interval of fair weather their Halcyon days; and they are particularly careful to seize the opportunity, as they have no interruption to dread.'

Numberless instances might be adduced of the credulity of mankind with respect to this bird. But the

the King-Fisher, with which we are now acquainted, possesses none of those powers of allaying the storm, or of building on the waves: it is contented to build its nest on the banks of rivers, and in such situations as are most unlikely to be affected by the rise of the stream. When it has fixed on a proper spot, it digs with its bill a hole about a yard deep: and sometimes it occupies the deserted hole of a rat, or one caused by the decay of the root of an old tree; enlarges it towards the bottom; lines it with the down of the willow; and, without any additional preparation, deposits its eggs.

In reality, the nest of the King-Fisher, in modern times, (and birds in a state of nature never change their instincts) is very different from that described by the ancients, as shaped like a long-necked gourd, and composed of the bones of the sea-needle. Plenty of bones and scales, indeed, are always found in it; but these are only the remains of the bird's food, and not brought there either for the purposes of warmth or convenience. The King-Fisher, as Bellonius observes, feeds on fish, but cannot digest their bones or scales; and therefore throws them up again, as eagles and owls are observed to do a part of their prey.

In one of these deep and gloomy holes there are frequently found from five to nine eggs; and if the nest be robbed, the bird returns, and lays in the same situation. 'I have had,' says Reaumur, 'one of these females brought me, taken from her nest about three leagues from my house. After admiring the beauty of her colours, I permitted her to fly; when the fond creature was instantly seen to repair to the nest where she had just before been made a captive: there joining the male, she again began to lay, though it was for the third time, and the season was very far advanced. At each time she had seven eggs. The older the nest is, the greater quantity of fish-bones and scales does it contain: these are disposed without any order, and sometimes occupy a considerable share of room.'

In our climate the King-Fisher begins to lay early in the season, and excludes her first brood about the beginning of April. The fidelity of the male exceeds that of the turtle: he brings the female large supplies of fish during the season of incubation; and she, contrary to most other birds, is always plump and fat at that time. The male, who on other occasions always makes a twittering noise, now enters the nest with all the silence and circumspection imaginable. The young are hatched at the expiration of twenty days; but they do not acquire the beauty of their plumage till after the first molting season.

The flesh of the King-Fisher is utterly unfit for food; but its beautiful plumage preserves its lustre longer than that of any other bird with which we are acquainted.

KING-FISHER, AMERICAN. This bird, as to its general shape, resembles the European King-Fisher, as well in its bill as feet; but its tail is much longer in proportion. The bill is strong and blackish, except towards the base, where it is of a reddish flesh-colour. The head is of a lead-colour, inclining to blue; and on its top there is a kind of crest of long loose feathers. On each side of the head there are two white spots; and the throat and under-side of the neck are white. The breast is lead-coloured. Six or seven of the prime quills are blackish, with small white spots on the outer webs, which form collectively transverse lines of white: the rest of the quills have white tips; and the inner covert-feathers of the wings are white,

with a small admixture of orange. The tail is of a pale lead-colour, tipped and transversely marked with narrow bars of white. The belly, the thighs, and the covert-feathers under the tail, are white; the legs and feet are of a reddish brown hue; and the claws are dusky.

KING-FISHER, LITTLE GREEN AND ORANGE-COLOURED. The length of this bird is about five inches and a half from the tip of the bill to the end of the tail. The bill is dusky, except that the lower chap is reddish towards the base. The throat is orange-coloured; and a mark of the same colour runs on each side from the base of the bill over the eyes. The head, the hinder part of the neck, the back, the tail, and the covert-feathers of the wings, are a fine green; a bar of the same colour crosses the breast; but the sides of the belly are of a bright reddish orange-colour. The lower part of the belly, the thighs, and the covert-feathers under the tail, are white; the tail is composed of twelve plumes, the two middle ones being somewhat longer than the rest; and the inner webs are all spotted with white. The inner coverts and the ridges of the wings are a light orange; and the quills are dusky, spotted with a light clay-colour on the outer and inner webs, excepting a few of the outer quills. The legs and feet are small; and the toes, which are flesh-coloured, are connected like those of the other King-Fisher species.

KING-FISHER OF CATESBY. This bird is about the size of the thrush, and the largest of all those which have short tails. The head is big in proportion; and thick of feathers, which form an irregular blue tuft. A white line appears under the eyes, and a spot of the same colour on the forehead. The breast is white, variegated with streaks of red and blue; the quill-feathers of the wings are black, tipped with white; the lower part of the belly is white; the tail is blue; and there are three toes before, and one behind.

KING-FISHER, GREAT, OF GAMBIA. This species is as large as the greater thrush. The bill is long and straight, ending in a sharp point, and of a bright scarlet colour; the upper mandible is channelled on each side; and the angles or corners of the mouth, which are deep cut, fall directly under the eyes. The head, the neck, the whole under-side, and part of the back, are covered with dirty orange-coloured feathers; the chin and breast are lighter than the back; the wings are purple in the upper part; the greater quills are blue, except some of the foremost, which are black; and the ridges of the wings are white. The lower part of the rump and back is a beautiful varying blue green, the wing-feathers bordering on the back partaking of the same colour; the tail is a fine blue with a greenish tinge; the legs and feet are red; and the claws are black.

KING-FISHER, BLACK AND WHITE. The bill of this bird is of a black colour, long, pretty thick at the base, and ends in a sharp point. The crown of the head and the hinder part of the neck are black; a broad line passes from the angles of the mouth under the eyes, which blends with a similar colour behind the neck; and from the nostrils are drawn white lines above the eyes, and continued the whole length of the head. The whole under-side, from the bill to the tail, is of a dirty yellowish white colour, except a narrow bar of black spots that crosses the middle of the breast. The whole back is black, tipped with grey; the ridge of the wing is white; the covert-feathers are partly black and partly white; the bastard-wing is black; the tail-

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feathers are white towards their bottoms, with a row of transverse black spots; towards the tip there is a broad bar of black; and beyond it the tips are white. This bird was first described by Edwards; and, according to him, is a native of Persia.

KING-FISHER, SURINAM. This species has a long, straight, black bill, with channels in the upper mandible. The head is of a dirty brown colour, brighter towards the bill, and darker in the hinder part; under the bill there is a pretty large white spot of an irregular figure; the whole body is of a dirty black hue with a blueish gloss; the wings are of a fine dark shining green colour, a single white feather appearing among the coverts; the upper side of the tail is a dark glossy green, the under being dusky; the two centre feathers are of an enormous length; and the legs and feet are black. This bird, which is a native of Surinam, is distinguished by Linnæus under the name of *Alcedo Paradisea*.

KING-FISHER, SPOTTED. The bill of this bird is dusky; a broad line runs from the bill on each side of the head; and above and beneath the eyes there are narrow lines of orange. The throat, breast, belly, thighs, coverts beneath the tail, and inner coverts of the wings, are of a fine orange-colour; between the back and neck passes a broad list or collar of black feathers, edged with white; the crown of the head is black, but gradually becomes green on the hinder part of the neck; the sides of the head are green; and the back, rump, upper sides of the wings, and tail, are also of a fine glossy dark green hue, variegated with white spots. The quills within-side, and the under-side of the tail, are of a dark ash-colour, with whitish spots on their webs; the tips of the quills without are dusky an inch deep; and the legs and feet are of a reddish flesh-colour. This species is a native of Surinam.

KING-FISHER, CRESTED. The bill of this bird is of the common shape and colour; a line of orange passes under the eyes; the throat under the bill is white; and the crown of the head is covered with long blue green feathers, variegated with black lines, forming an elegant loose crest. The feathers immediately above the eyes are blue; the hinder part of the neck, the back, rump, wings, and tail, are of a beautiful ultramarine blue colour; the tips of the quills are dusky; the inner covert-feathers of the wings are orange-coloured; the under-side of the tail is dusky; the breast, belly, thighs, and covert-feathers under the tail, are a bright orange; and the legs and feet are red. This bird, which is a native of the East Indies, was first described by Edwards.

KING-FISHER OF BENGAL. This bird is somewhat smaller than the thrush. The bill is about three inches long, of a fine scarlet colour, thick at the base, and sharp at the end; the irides are a fine yellow; the head, the upper part of the neck, and the back, are brown; and the breast, throat, and part of the belly, are white, having five large brown spots on each wing. The lower part of the back, the wings, and the tail, are of a fine blueish green colour, except the coverts of the wings, which are brown; and the legs and toes are orange-coloured, and very short.

KING-FISHER, SMALL, OF BENGAL. This species, which is about the size of the common King-Fisher, has a fine scarlet bill, pretty thick at the base. On the forehead there is a yellow spot, and another under the throat. A broad black line runs from the bill quite round the eyes. The head

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is adorned with a tuft of a dull red colour; and beneath it there is a dark blue line, separated from the back by a broad white stripe. The back and wings are a dark blue; the upper part of the tail is red; the belly, thighs, and lower part of the tail, are a beautiful yellow; and the legs and feet are reddish.

KING-FISHER OF LUÇON. This bird is about the size of the blackbird: the top of the head, and part of the neck, are brown; and this colour likewise encircles the eyes, but above them there is a short white line extending to the bill. The lesser coverts of the wings are of the same colour with the head and neck; the primaries are blue and black in their middles, tipped with the latter; the upper part, and the middle of the back, are brownish; the rump and coverts of the tail are a bright sky blue; and the tail itself is a deep blue. The fore-part of the neck, the breast, and the belly, are white, with a longitudinal brown mark in the middle of each feather; and between the neck and the back there is a collar of similar colours. This species was first described by Sonnerat.

KING-FISHER, WHITE-COLLARED, PHILIPPINE. This curious species, originally described by Sonnerat in his Voyage to New Guinea, is somewhat less than the thrush: the head, neck, wings, tail, and back, are blue shaded with green; the throat, breast, belly, and under-coverts of the tail, are white; and a circle of the same colour surrounds the neck. The feet, and the upper mandible, are of a pale black hue; and the lower mandible has a yellowish base.

KITE; the *Falco Milvus* of Linnæus. A well-known bird of the hawk kind, which may be distinguished from all the rest of this tribe by his forked tail, as well as by his slow floating motion, being almost perpetually on the wing. He appears to repose on the bosom of the air, without making the least effort to support himself. Pliny apprehends that the invention of the rudder originated from observations made of the various motions of the tail of the Kite when steering through the air: certain, however, it is, that the most useful arts were originally copied from animals, though mankind may have improved on them.

The Kite subsists principally on accidental carnage, as almost every bird is able to escape from him. He may therefore be considered as an insidious thief, who only prowls about; and, when he perceives a small bird wounded, or a young chicken that has strayed too far from its parent, instantly avails himself of the hour of calamity, and, like a famished glutton, destroys the victim without mercy.

The Kite usually breeds in large forests, or woody mountainous countries; and lays two, and sometimes three, white eggs, marked with dirty yellow spots; which, like those of other predaceous birds, are very round and blunt at their smaller ends.

Lord Bacon remarks, that when the Kite flies high, fine and dry weather may be expected. It has been reckoned a bird of passage, by some authors; but it is now universally known to continue in England throughout the year. Its length is twenty-seven inches; the expansion of its wings is about five feet; and its weight is forty-four ounces. The bill is two inches long, and very much hooked at the extremity; the skin at the base of the bill is yellow; the head and chin are of a light grey colour, though sometimes white marked with oblong streaks of black; the neck and

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and breast are of a tawny red hue, but the middles of the feathers are black. The spots are less numerous on the belly and thighs, and under the tail they almost disappear. The back is brown; the first five quill-feathers are black; and on the inner webs of the remainder there are large blotches of white. The coverts of the wings are varied with tawny black and white; and the tail is of a tawny red hue, the outer feathers on each side being darker than the rest. The thighs are covered with very long feathers; and the legs are yellow and strong. However, these birds differ in their colours, some having been observed entirely of a tawny hue.

The Kite is said to be of essential service in medicine. Its ashes, taken inwardly, are esteemed effectual in the gout and epilepsy; the same is said of the head and liver, when burnt; and the latter is also an ingredient in ophthalmic medicines. The blood, mixed with nettles, and applied, is said to give relief in the gout; the gall enters the composition of collyria for the eyes; and the fat is used in anointing podagrical patients.

KITE, BRAZILIAN. This species, which is also called Caracara, and by the Portuguese Gaviao, is about the size of the common Kite: its tail is nine inches long; its head resembles that of the hawk; its bill is black and hooked; its plumage is tawny, with white and yellow specks; and its feet are yellow, with semicircular, long, sharp, black talons.

KITTIWAKE; the *Larus Rissa* of Linnæus. A bird of the gull kind, which inhabits the romantic cliffs of Flamborough Head, the Bass Isle, Priestholm Isle, the rocks near Slains in Aberdeenshire, and Northfield in the county of Bamff. The head, neck, belly, and tail, are of a snowy whiteness; behind each ear a dusky spot sometimes appears; the back and wings are grey; the bill is yellow tinged with green; and the legs, which are dusky, are furnished with a small knob instead of the hind toe.

KLIP-FISH. A name supposed by some authors to mean the *lupus piscis*, or wolf-fish; and, by others, the common cod-fish. Fabricius is of the former opinion, and Schonefeldt of the latter.

KLIP-FISH is also a name by which the Dutch in the East Indies call a flat fish frequently caught on the shores, somewhat resembling the bream. It is generally about six or seven inches in length, and of a very white and silvery hue: the nerves of the dorsal fin are prickly, as in the perch; the tail is pointed; and the irides are of a beautiful yellow colour. The flesh is extremely admired for its delicacy and flavour.

KNOT; the *Tringa Canutus* of Linnæus. An English bird of the snipe kind, said to have obtained its name from Canute, one of the Danish kings of this island, who is reported to have been extremely fond of its flesh.

This bird is seldom more than four ounces and a half in weight; the head and back are of a greyish brown colour; the rump is variegated with black and grey; the breast and belly are white; and the sides are brownish. In some varieties, a white streak runs on each side of the head from the angle of the beak to the eyes. The long feathers of the wings are black and white; the tail, which is about two inches long, is tipped with white; the beak is black, and nearly an inch long; the eyes are large; and the legs are green.

These birds are taken in great numbers, on the

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coasts of Lincolnshire, with a particular kind of net, which will sometimes enclose fourteen dozen at once. Their season is from the beginning of August to that of November. They always disappear at the commencement of the first frosty weather.

KOB. An appellation given by Buffon to his sixth variety of the garelle tribe.

KOBA. A name given by Buffon to his fifth variety of the garelle tribe.

KOHLMULEN. An appellation given by some naturalists to the *asellus flavescens*, or yellow cod; called also the blank and gelbe.

KOKOB. A West Indian species of serpent, the bite of which is extremely fatal. It is of a brown colour, variegated with green and red spots; and is somewhat less than the common viper.

KOMMANICK. A German appellation for the large-crested lark, common in many parts of that country, but wholly unknown in the British isles. It is about the size of the common lark, but its beak is much thicker and longer: the back has more grey, and fewer spots, than the common lark; the rump is almost of one uniform grey colour; and the crest is composed of ten or twelve dark-coloured plumes, which the bird can raise, depress, or expand, at pleasure. This songster seldom soars very high in the air; and generally frequents the banks of rivers.

KORACHERYNCHUS INDICUS. An oriental fish, called by the Dutch Raevenbeck. It receives its name from the similarity of its snout to the beak of the crow. It seldom exceeds seven inches in length: its back and tail are red; its belly is yellow; and it has also on each side two pale yellow lines, which run from the gills to the tail. The flesh is wholesome and well-tasted.

KORETTE, SEA. An East Indian fish, about six or seven inches in length, with large yellow eyes, and a bifid yellowish tail. The fins are yellow; the belly inclines to green; and under it and the tail there are several fins. The flesh is esteemed delicate and nutritive.

KRAKEN. A marine animal of the most enormous dimensions; the credit of whose existence depends on the evidence of Pontoppidon, bishop of Bergen, in his Natural History of Norway: and though it would be ungenerous to deny its reality, the relation certainly stands in need of farther confirmation.

As no person has ever pretended to have seen a full-grown Kraken in all its dimensions, a particular account of its conformation cannot be expected: nevertheless, we shall adduce the arguments of our author, on which he grounds his own belief of the existence of this monstrous production of nature; and leave every one to judge for himself of their probability and authenticity.

‘Our fishermen,’ says Pontoppidon, ‘unanimously and invariably affirm, that when they are several miles from the land, particularly in hot summer weather, and by their distance, and the bearings of some points of land, expect from eighty to an hundred fathoms in depth, and do not find more than twenty or thirty; and more especially, if they discover an unusual quantity of cod and ling, they judge that the Kraken is at the bottom: but if they find by their lines that the water in the same place still shallows on them, they know that it is rising to the surface, and row off with the greatest expedition till they come into the usual soundings of the place; there lying a few minutes on their oars, they see the monster emerge, and display

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play itself sufficiently, though it's whole body is not apparent. It's back, or upper surface, which seems an English mile and a half in circumference, (some have affirmed more) looks at first like a number of small islands, surrounded with something that floats like sea-weeds; at last several bright points or antennæ appear, which grow thicker the higher they emerge, and sometimes stand as high and large as the masts of middle-sized vessels. In a short time, it gradually sinks, which is thought as dangerous as it's rising, causing such a swell and vortex, that it draws in vessels, like that of Malestram.'

The bishop laments the omission of the only opportunity which ever has been, or perhaps ever may be presented, of examining this creature when alive, or seeing it entire when dead: this, he acquaints us, did once occur, on the credit of the minister of Nordland, and vicar of the College for promoting Christian knowledge; who informed him, that a Kraken came into the shallows between the rocks and cliffs near Absthong; where, in turning about, some of it's long horns caught hold of the adjoining trees, which it might have easily torn up, had it not been entangled in some clefts of the rock, whence it could not extricate itself, but putrified on the spot.

Pontoppidon mentions no account he has ever received of this monster proving fatal to any person; but relates a report of the danger of two fishermen, who arrived at a part of the water covered with a quantity of the creature's thick slimy excrements: they immediately strove to row off, but were not quick enough in turning to save the boat from one of the Kraken's horns, which so crushed it's prow, that it was with difficulty they saved their lives on the wreck, though the weather was perfectly calm. The excrements of this animal are said to be attractive of other fish, on which it feeds. This expedient was probably necessary to it's subsistence, on account of it's slow unwieldy motion; as this slow motion again may be necessary to the security of a ship, which would certainly be overwhelmed on encountering such an immense animal, if it's velocity was equal to it's weight.

In confirmation of the reality of this monster, our learned author cites the description of Faroe by Debes, for the existence of certain islands, which suddenly appear, and as suddenly vanish. Many sea-faring people, he adds, give accounts of such, particularly in the North Seas; which their superstition has either ascribed to the delusion of the devil, or considered as inhabited by evil spirits. However, Pontoppidon supposes such mistaken islands to be nothing else but the Kraken; in which opinion he is greatly confirmed by the subsequent quotation from Dr. Hierne, a learned Swede, and which is certainly a very remarkable passage. 'Among the rocks about Stockholm,' says he, 'there is sometimes seen a tract of land, which at other times disappears, and is seen again in another place. Buræus has placed it as an island in his map. The peasants, who call it gummar's ore, say, that it is not always visible, and that it lies out in the open sea, but it never fell under my inspection. One Sunday, when I was out among the rocks, founding the coasts, it happened that, in one

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place, I saw something like three points of land in the sea, which surprized me a little, as I thought I had inadvertently passed them over before. On this I called to a peasant to enquire for gummar's ore; but when he came, we could see nothing of it: on which the peasant said all was well, and that this prognosticated a storm, or a quantity of fish.' To this our author subjoins, 'Who cannot discover that this gummar's ore, with it's points, and prognostications of fishes, was the Kraken, mistaken for an island by Buræus!'

The bishop takes the Kraken, probably from it's numerous tentacula, which serve it as feet, to be of the polype kind; and the contemplation of it's enormous bulk led him to apply some passages in the sacred writings as descriptive of it.

After paying a just tribute of respect to the moral character and philosophical abilities of our author, we must admit the possibility of this creature's existence, as it implies no contradiction; though it seems to oppose a general prepossession of the whale's being the largest animal in nature. But, were we to suppose a salmon or a sturgeon the largest fish any number of persons had ever seen or heard of, and that the whale had discovered himself as seldom, and but in part, like the Kraken; then it will be easily conceived, that the existence of the whale had been as unwillingly credited as that of the Kraken is now. Some, indeed, may suppose, that such an extensive monster would encroach on the symmetry of nature, and be over proportionate to the size of the globe itself; as a little retrospection will inform us, that the breadth of what is seen of it, supposing it nearly round, must be full two thousand six hundred feet; and it's thickness, which may be called it's altitude, at least three hundred. Nevertheless, we apprehend that these immense dimensions will not argue conclusively against the existence of the animal, though considerably against a numerous increase or propagation of it. In fact, the great scarcity of the Kraken, it's confinement to the North Sea, and perhaps to similar latitudes in the south; the small number propagated by the whale, which is viviparous; and by the largest land-animals, of which the elephant is said to go two years with young; all incline us to conclude, from the analogy of nature, that this monster is by no means numerous.

KUTZE GEHEF. A very beautiful mew, (so called by Marten) which receives it's name from it's cry. The bill is somewhat bent; and on it's under part there is a small protuberance, or knob. The eyes are black, each being surrounded with a red circle; the tail is long and expanded like a fan; the legs are black and short; the belly is of a snowy whiteness; and the wings and back are grey, except that the tips of the former are black.

This bird, which is about the size of the common mew, is caught with a hook baited with whale-fat, of which kind of food it is very fond. It is hunted by the arctic gull, that never desists pursuing it till it drops it's excrements, which that bird devours. It is generally extremely lean; and even the little flesh it contains is wholly confined to it's legs and breast.