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*The GREAT INTERNATIONAL
FISHERIES EXHIBITION*

SEA MONSTERS
UNMASKED

ILLUSTRATED

BY

HENRY LEE, F.L.S.

LONDON

1883

WILLIAM CLOWES AND SONS LIMITED

INTERNATIONAL FISHERIES EXHIBITION

AND 13 CHURCH CROSS · SW.

ONE SHILLING

THE SEA SERPENT, AS FIRST SEEN FROM H.M.S. 'DÆDALUS.'

Frontispiece.

International Fisheries Exhibition

LONDON, 1883

SEA MONSTERS UNMASKED

BY

HENRY LEE, F.L.S., F.G.S., F.Z.S.

SOMETIME NATURALIST OF THE BRIGHTON AQUARIUM

AND

AUTHOR OF 'THE OCTOPUS, OR THE DEVIL-FISH OF FICTION AND FACT'

ILLUSTRATED

LONDON

WILLIAM CLOWES AND SONS, LIMITED
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AND 13 CHARING CROSS, S.W.

1883

PREFACE.

AS I commence this little history of two sea monsters there comes to my mind a remark made to me by my friend, Mr. Samuel L. Clemens—"Mark Twain"—which illustrates a feeling that many a writer must have experienced when dealing with a subject that has been previously well handled. Expressing to me one day the gratification he felt in having made many pleasant acquaintances in England, he added, with dry humour, and a grave countenance, "Yes! I owe your countrymen no grudge or ill-will. I freely forgive them, though one of them did me a grievous wrong, an irreparable injury! It was Shakspeare: if he had not written those plays of his, I should have done so! They contain *my* thoughts, *my* sentiments! He forestalled me!"

In treating of the so-called "sea-serpent," I have been anticipated by many able writers. Mr. Gosse, in his delightful book, 'The Romance of Natural History,' published in 1862, devoted a chapter to it; and numerous articles concerning it have appeared in various papers and periodicals.

But, for the information from which those authors have drawn their inferences, and on which they have founded their opinions, they have been greatly indebted, as must be all who have seriously to consider this subject, to the

late experienced editor of the *Zoologist*, Mr. Edward Newman, a man of wonderful power of mind, of great judgment, a profound thinker, and an able writer. At a time when, as he said, "the shafts of ridicule were launched against believers and unbelievers in the sea-serpent in a very pleasing and impartial manner," he, in the true spirit of philosophical inquiry, in 1847, opened the columns of his magazine to correspondence on this topic, and all the more recent reports of marine monsters having been seen are therein recorded. To him, therefore, the fullest acknowledgments are due.

The great cuttles, also, have been the subject of articles in various magazines, notably one by Mr. W. Saville Kent, F.L.S., in the 'Popular Science Review' of April, 1874, and a chapter in my little book on the Octopus, published in 1873, is also devoted to them. In writing of them as the living representatives of the kraken, and as having been frequently mistaken for the "sea-serpent," my deductions have been drawn from personal knowledge, and an intimate acquaintance with the habits, form, and structure of the animals described. It was only by watching the movements of specimens of the "common squid" (*Loligo vulgaris*), and the "little squid" (*L. media*), which lived in the tanks of the Brighton Aquarium, that I recognised in their peculiar habit of occasionally swimming half-submerged, with uplifted caudal extremity, and trailing arms, the fact that I had before me the "sea-serpent" of many a well-authenticated anecdote. A mere knowledge of their form and anatomy after death had never suggested to me that which became at once apparent when I saw them in life.

It is a pleasure to me to acknowledge gratefully the kindness I have met with in connection with the illustra-

tions of this book. The proprietors of the *Illustrated London News* not only gave me permission to copy, in reduced size, their two pictures of the *Dædalus* incident, but presented to me electrotypes copies of all others small enough for these pages—namely, “Jonah and the Monster,” Egede’s “Sea-Serpent,” and the Whale as seen from the *Pauline*. Equally kind have been the proprietors of the *Field*. To them I am greatly indebted for their permission to copy the beautiful woodcuts of the “Octopus at Rest,” “The Sepia seizing its Prey,” and the arms of the Newfoundland squids, and also for “electros” of the two curious Japanese engravings, all of which originally appeared in their paper. From the *Graphic* I have had similar permission to copy any cuts that might be thought suitable, and the illustrations of the sea-serpent, as seen from Her Majesty’s yacht *Osborne* and the *City of Baltimore*, are from that journal. Messrs. Nisbet most courteously allowed me to have a copy of the block of the *Enaliosaurus* swimming, which was one of the numerous pictures in Mr. Gosse’s book, published by them, already referred to. And last, not least, I have to thank Miss Ellen Woodward, daughter of my friend, Dr. Henry Woodward, F.R.S., for enabling me to better explain the movements and appearances of the squids when swimming, and when raising their bodies out of water in an erect position, by carefully drawing them from my rough sketches.

HENRY LEE.

SAVAGE CLUB;

July 21st, 1883.

LIST OF ILLUSTRATIONS.

Frontispiece.—The Sea Serpent as first seen from H.M.S.
Dædalus.

FIG.	PAGE
1. Beak and Arms of a Decapod Cuttle	16
2. The Octopus (<i>Octopus vulgaris</i>)	18
3. The Cuttle (<i>Sepia officinalis</i>)	21
4. Hooked Tentacles of <i>Onychoteuthis</i>	23
5. Japanese fisherman attacked by a Cuttle	29
6. Arms of a great Cuttle exhibited in a Japanese fish-shop	29
7. Facsimile of De Montfort's " <i>Poulpe colossal</i> ".	32
8. Gigantic Calamary caught by the French despatch vessel <i>Alecton</i> , near Teneriffe	39
9. Tentacle of a great Calamary (<i>Architeuthis princeps</i>) taken in Conception Bay, Newfoundland	43
10. Head and Tentacles of a great Calamary (<i>Architeuthis princeps</i>) taken in Logie Bay, Newfoundland	44
11. Jonah and the Sea Monster	55
12. Sea Serpent seizing a man on board ship	58
13. Gigantic Lobster dragging a man from a ship	58
14. Pontoppidan's "Sea Serpent"	63
15. The Animal drawn by Mr. Bing as having been seen by Egede	66
16. The Animal which Egede probably saw	67
17. The Sea Serpent of the Wernerian Society (<i>facsimile</i>)	69
18. A Calamary swimming at the surface of the sea	77
19. The Sea Serpent passing under the quarter of H.M.S. <i>Dædalus</i>	81
20. The Sea Serpent and Sperm Whale as seen from the <i>Pauline</i>	91
21. The Sea Serpent as seen from the <i>City of Baltimore</i>	93
22. The Sea Serpent as seen from H.M. yacht <i>Osborne</i> . Phase 1	94
23. The Sea Serpent as seen from H.M. yacht <i>Osborne</i> . Phase 2	94
24. Skeleton of the <i>Plesiosaurus</i> , restored by Mr. Conybeare	98
25. The Sea Serpent on the Enaliosaurian hypothesis	100

SEA MONSTERS UNMASKED.

THE KRAKEN.

IN the legends and traditions of northern nations, stories of the existence of a marine animal of such enormous size that it more resembled an island than an organised being frequently found a place. It is thus described in an ancient manuscript (about A.D. 1180), attributed to the Norwegian King Sverre; and the belief in it has been alluded to by other Scandinavian writers from an early period to the present day. It was an obscure and mysterious sea-monster, known as the Kraken, whose form and nature were imperfectly understood, and it was peculiarly the object of popular wonder and superstitious dread.

Eric Pontoppidan, the younger, Bishop of Bergen, and member of the Royal Academy of Sciences at Copenhagen, is generally, but unjustly, regarded as the inventor of the semi-fabulous Kraken, and is constantly misquoted by authors who have never read his work,* and who, one after another, have copied from their predecessors erroneous statements concerning him. More than half a century before him, Christian Francis Paullinus,† a physician and naturalist of Eisenach, who evinced in his writings an admiration of

* 'Natural History of Norway.' A.D. 1751.

† Born 1643; died 1712.

the marvellous rather than of the useful, had described as resembling Gesner's 'Heracleoticon,' a monstrous animal which occasionally rose from the sea on the coasts of Lapland and Finmark, and which was of such enormous dimensions, that a regiment of soldiers could conveniently manœuvre on its back. About the same date, but a little earlier, Bartholinus, a learned Dane, told how, on a certain occasion, the Bishop of Midaros found the Kraken quietly reposing on the shore, and mistaking the enormous creature for a huge rock, erected an altar upon it and performed mass. The Kraken respectfully waited till the ceremony was concluded, and the reverend prelate safe on shore, and then sank beneath the waves.

And a hundred and fifty years before Bartholinus and Paullinus wrote, Olaus Magnus,* Archbishop of Upsala, in Sweden, had related many wondrous narratives of sea-monsters,—tales which had gathered and accumulated marvels as they had been passed on from generation to generation in oral history, and which he took care to bequeath to his successors undeprived of any of their fascination. According to him, the Kraken was not so polite to the laity as to the Bishop, for when some fishermen lighted a fire on its back, it sank beneath their feet, and overwhelmed them in the waters.

Pontoppidan was not a fabricator of falsehoods; but, in

* Olaus Magnus has sometimes been mistaken for his brother and predecessor in the archiepiscopal see, Johan Magnus, author of a book entitled 'Gothorum, Suevorumque Historia.' Olaus was the last Roman Catholic archbishop of the Swedish church, and when the Reformation, supported by Gustavus Vasa, gained the ascendancy in Sweden, he remained true to his faith, and retired to Rome, where he wrote his work, 'Historia de Gentibus Septentrionalibus,' Romæ, 1555. An English translation of this book was published by J. Streater, in 1658. It does not contain the illustrations.

collecting evidence relating to the "great beasts" living in "the great and wide sea," was influenced, as he tells us, by "a desire to extend the popular knowledge of the glorious works of a beneficent Creator." He gave too much credence to contemporary narratives and old traditions of floating islands and sea monsters, and to the superstitious beliefs and exaggerated statements of ignorant fishermen : but if those who ridicule him had lived in his day and amongst his people, they would probably have done the same ; for even Linnæus was led to believe in the Kraken, and catalogued it in the first edition of his '*Systema Naturæ*,' as '*Sepia Microcosmos*.' He seems to have afterwards had cause to discredit his information respecting it, for he omitted it in the next edition. The Norwegian bishop was a conscientious and painstaking investigator, and the tone of his writings is neither that of an intentional deceiver nor of an incautious dupe. He diligently endeavoured to separate the truth from the cloud of error and fiction by which it was obscured ; and in this he was to a great extent successful, for he correctly identifies, from the vague and perplexing descriptions submitted to him, the animal whose habits and structure had given rise to so many terror-laden narratives and extravagant traditions.

The following are some of his remarks on the subject of this gigantic and ill-defined animal. Although I have greatly abbreviated them, I have thought it right to quote them at considerable length, that the modest and candid spirit in which they were written may be understood : *

"Amongst the many things," he says, "which are in the ocean, and concealed from our eyes, or only presented to our view for a few minutes, is the Kraken. This creature is the largest and most surprising of all the animal creation, and consequently well de-

* '*Natural History of Norway*,' vol. ii., p. 210.

serves such an account as the nature of the thing, according to the Creator's wise ordinances, will admit of. Such I shall give at present, and perhaps much greater light on this subject may be reserved for posterity.

“ Our fishermen unanimously affirm, and without the least variation in their accounts, that when they row out several miles to sea, particularly in the hot summer days, and by their situation (which they know by taking a view of different points of land) expect to find eighty or a hundred fathoms of water, it often happens that they do not find above twenty or thirty, and sometimes less. At these places they generally find the greatest plenty of fish, especially cod and ling. Their lines, they say, are no sooner out than they may draw them up with the hooks all full of fish. By this they know that the Kraken is at the bottom. They say this creature causes those unnatural shallows mentioned above, and prevents their sounding. These the fishermen are always glad to find, looking upon them as a means of their taking abundance of fish. There are sometimes twenty boats or more got together and throwing out their lines at a moderate distance from each other ; and the only thing they then have to observe is whether the depth continues the same, which they know by their lines, or whether it grows shallower, by their seeming to have less water. If this last be the case they know that the Kraken is raising himself nearer the surface, and then it is not time for them to stay any longer ; they immediately leave off fishing, take to their oars, and get away as fast as they can. When they have reached the usual depth of the place, and find themselves out of danger, they lie upon their oars, and in a few minutes after they see this enormous monster come up to the surface of the water ; he there shows himself sufficiently, though his whole body does not appear, which, in all likelihood, no human eye ever beheld. Its back or upper part, which seems to be in appearance about an English mile and a half in circumference (some say more, but I chuse the least for greater certainty), looks at first like a number of small islands surrounded with something that floats and fluctuates like sea-weeds. Here and there a larger rising is observed like sand-banks, on which various kinds of small fishes are seen continually leaping

about till they roll off into the water from the sides of it ; at last several bright points or horns appear, which grow thicker and thicker the higher they rise above the surface of the water, and sometimes they stand up as high and as large as the masts of middle-sized vessels. It seems these are the creature's arms, and it is said if they were to lay hold of the largest man of war they would pull it down to the bottom. After this monster has been on the surface of the water a short time it begins slowly to sink again, and then the danger is as great as before ; because the motion of his sinking causes such a swell in the sea, and such an eddy or whirlpool, that it draws everything down with it, like the current of the river Male.

“As this enormous sea-animal in all probability may be reckoned of the Polype, or of the Starfish kind, as shall hereafter be more fully proved, it seems that the parts which are seen rising at its pleasure, and are called arms, are properly the tentacula, or feeling instruments, called horns, as well as arms. With these they move themselves, and likewise gather in their food.

“Besides these, for this last purpose the great Creator has also given this creature a strong and peculiar scent, which it can emit at certain times, and by means of which it beguiles and draws other fish to come in heaps about it. This animal has another strange property, known by the experience of many old fishermen. They observe that for some months the Kraken or Krabben is continually eating, and in other months he always voids his excrements. During this evacuation the surface of the water is coloured with the excrement, and appears quite thick and turbid. This muddiness is said to be so very agreeable to the smell or taste of other fishes, or to both, that they gather together from all parts to it, and keep for that purpose directly over the Kraken ; he then opens his arms or horns, seizes and swallows his welcome guests, and converts them after due time, by digestion, into a bait for other fish of the same kind. I relate what is affirmed by many ; but I cannot give so certain assurances of this particular, as I can of the existence of this surprising creature ; though I do not find anything in it absolutely contrary to Nature. As we can hardly expect to examine this enormous sea-animal alive, I am the more

concerned that nobody embraced that opportunity which, according to the following account once did, and perhaps never more may offer, of seeing it entire when dead."

The lost opportunity which the worthy prelate thus lamented, with the true feeling of a naturalist, was made known to him by the Rev. Mr. Friis, Consistorial Assessor, Minister of Bodoen in Nordland, and Vicar of the college for promoting Christian knowledge, and was to the following effect :

"In the year 1680, a Krake (perhaps a young and foolish one) came into the water that runs between the rocks and cliffs in the parish of Alstaboug, though the general custom of that creature is to keep always several leagues from land, and therefore of course they must die there. It happened that its extended long arms or antennæ, which this creature seems to use like the snail in turning about, caught hold of some trees standing near the water, which might easily have been torn up by the roots ; but beside this, as it was found afterwards, he entangled himself in some openings or clefts in the rock, and therein stuck so fast, and hung so unfortunately, that he could not work himself out, but perished and putrefied on the spot. The carcass, which was a long while decaying, and filled great part of that narrow channel, made it almost impassable by its intolerable stench.

"The Kraken has never been known to do any great harm, except," the Author quaintly says, "they have taken away the lives of those who consequently could not bring the tidings. I have heard but one instance mentioned, which happened a few years ago, near Fridrichstad, in the diocess of Aggerhuus. They say that two fishermen accidentally, and to their great surprise, fell into such a spot on the water as has been before described, full of a thick slime almost like a morass. They immediately strove to get out of this place, but they had not time to turn quick enough to save themselves from one of the Kraken's horns, which crushed the head of the boat, so that it was with great difficulty they saved their lives on the wreck, though the weather was as calm as

possible ; for these monsters, like the sea-snake, never appear at other times."

Pontoppidan then reviews the stories of floating islands which suddenly appear, and as suddenly vanish, commonly credited, and especially mentioned by Luke Debes in his 'Description of Faroe.'

"These islands in the boisterous ocean could not be imagined," he says, "to be of the nature of real floating islands, because they could not possibly stand against the violence of the waves in the ocean, which break the largest vessels, and therefore our sailors have concluded this delusion could come from no other than the great deceiver, the devil."

This accusation, the good bishop, in his desire to be strictly impartial, will not admit on such hear-say evidence, but is determined to, literally, "give the devil his due;" for he warns his readers that "we ought not to charge that apostate spirit without a cause; for," he adds, "I rather think that this devil who so suddenly makes and unmakes these floating islands, is nothing else but the Kraken."

Referring to a monster described by Pliny, he repeats his belief that "This sea-animal belongs to the Polype, or Star-fish species;" but he becomes very much "mixed" between the *Cephalopoda* and the *Asteridæ*, between the pedal segments, or arms, of the cuttle radiating from its head, and the rays of a Star-fish radiating from a central portion of the body. He evidently inclines strongly towards a particular Star-fish, the rays of which continually divide and subdivide themselves, or, as he describes it, "which shoots its rays into branches like those of trees," and to which he gave the name of "Medusa's Head," a title by which, in its Greek form, *Gorgonocephalus*, it is still known to zoologists. "These Medusa's Heads," he says,

“are supposed by some seafaring people here, to be the young of the Sea-Krake ; perhaps they are its smallest ovula.” After considering other reports concerning the Kraken, he arrives at the following definite opinion :

“We learn from all this that the Polype or Starfish have amongst their various species some that are much larger than others ; and, according to all appearance, amongst the very largest inhabitants of the ocean. If the axiom be true that greatness or littleness makes no change in the species, then this Krake must be of the Polypus kind, notwithstanding its enormous size.”

His diagnosis is correct ; but it is stated with a modesty which his detractors would do well to imitate ; and his concluding words on this subject place him in a light very different from that in which he is popularly regarded :

“I do not in the least insist on this conjecture being true,” he writes, “but willingly submit my suppositions in this and every other dubious matter to the judgment of those who are better experienced. If I was an admirer of uncertain reports and fabulous stories, I might here add much more concerning this and other Norwegian sea-monsters, whose existence I will not take upon me to deny, but do not chuse, by a mixture of uncertain relations to make such account appear doubtful as I myself believe to be true and well attested. I shall therefore quit the subject here, and leave it to future writers on this plan to complete what I have imperfectly sketched out, by further experience, which is always the best instructor.”

It is easy to recognise in Pontoppidan's description of the Kraken, the form and habits of one of the “Cuttle-fishes,” so-called. The appearance of its numerous arms, with which it gathers in its food, and which grow thicker and thicker as they rise above the surface, is just what would take place in the case of one of the pelagic species of these mollusks raising its head out of the sea. The

rendering of the water turbid and thick by the emission of a substance which the narrator supposed to be fæcal matter, is exactly that which occurs when a cuttle discharges the contents of the remarkable organ known as its ink-bag ; and the strong and peculiar scent mentioned as appertaining to it, is actually characteristic of its inky secretion. The musky odour referred to, is more perceptible in some species than in others. In one of the Octopods (*Eledone moschatus*), it is so strong, that the specific name of the animal is derived from it.

The ancient Greeks and Romans, who were well acquainted with the various kinds of cuttles and regarded them all as excellent food, and even as delicacies of the table, applied the word "polypus" especially to the octopus. But Pontoppidan evidently uses it as descriptive of all the cephalopods. It must not be forgotten, however, that when he wrote, science was only slowly recovering from neglect of many centuries' duration. In the enlightened times of Greece and Rome, natural history flourished, and as in our day, attracted and occupied the attention of the man of science, and afforded recreation to the man of business and the politician. Aristotle wrote 322 years before the birth of Christ, and his works are monuments of practical wisdom. When we consider the period during which he lived, and the isolated nature of his labours, and compare them with the information which he possessed, we are astonished at his sagacity and the great scope and general accuracy of his knowledge. Pliny, 240 years later, lived in times more favourable for the cultivation of science ; but with all his advantages made little improvement on the work of the great master. And then, later still, the sun of learning set ; and there came over Europe the long night of the dark ages which succeeded

Roman greatness, during which science was degraded and ignorance prevailed ; and it is not till the middle of the sixteenth century, that the zoologist finds much to interest and instruct him. When we further reflect, that until within the past five and twenty years—till our large aquaria were constructed—Aristotle's knowledge of the habits and life-history of marine animals, and amongst them the cephalopods, was incomparably greater and more perfect than that possessed by any man who had lived since he recorded his observations, we cannot help feeling that in some departments of knowledge there is still lost ground to be recovered.

In the old days of the Cæsars, a Greek or Roman housewife who was accustomed to see the cuttle, the squid, and the octopus daily exposed for sale in the markets, would of course have laughed at the idea of mistaking the one for the other ; but there are comparatively few persons in our own country, at the present day, except those who have made marine zoology their study, whose ideas on the subject are not exceedingly hazy. This want of technical knowledge is not confined to the masses ; but is common, if not general, amongst those who have been well educated, and is frequently apparent even in leaders in the daily papers—the productions, for the most part, of men of receptive minds, trained discrimination, and great general knowledge. As the subject is one in which I have long felt especial interest, I venture to hope that I may succeed in making clear the difference between the eight-footed octopus and its ten-footed relatives, and thus enable the reader to identify the member of the family from which we are to strip the dress and “make up” in which it masqueraded as the Kraken, and cause it to appear in its true and natural form.

One of the great primary groups or divisions of the animal kingdom is that of the soft-bodied mollusca ; which includes the cuttle, the oyster, the snail, &c. It has been separated into five “classes,” of which the one we have especially to notice is the *Cephalopoda*,* or “head-footed,”—the animals belonging to it having their feet, or the organs which correspond with the foot of other molluscs, so attached to the head as to form a circle or coronet round the mouth. Some of these have the foot divided into eight segments, and are therefore called the *Octopoda*:† others have, in addition to the eight feet, lobes, or arms, two longer tentacular appendages, making ten in all, and are consequently called the *Decapoda*.

Of the ten-footed section of the cephalopods, there are four “families ;” two only of which exist in Britain—the *Teuthidæ*, and the *Sepiidæ*. The *Teuthidæ* are the Calamaries, popularly known as “Squids,” and are represented by the long-bodied *Loligo vulgaris*, that has internally along its back a gristly, translucent stiffener, shaped like a quill-pen ; from which and its ink it derives its names of “calamary” (from “*calamus*,” a “pen”), “pen-and-ink fish,” and “sea-clerk.” The *Sepiidæ* are generally known as the Cuttles proper. As a type of them we may take the common “cuttle-fish,” *Sepia officinalis*, the owner of the hard, calcareous shell often thrown up on the shore, and known as “cuttle-bone,” or “sea-biscuit.”

It must here be remarked, that as these head-footed mollusks are not “fish,” any more than lobsters, crabs, oysters, mussels, &c., which fishmongers call “shell-fish,” are “fish,” the word “fish” is misleading, and should be abandoned ; and secondly, that the names “cuttle” and “squid,” as dis-

* From the Greek words *cephale*, the head ; and *poda*, feet.

† From *octo*, eight ; and *pous* (*poda*), feet.

tinctive appellations, are unsatisfactory. The word "cuttle" is derived from "cuddle," to hug, or embrace—in allusion to the manner in which the animal seizes its prey, and enfolds it in its arms; and "squid" is derived from "squirt," in reference to its habit of squirting water or ink. But as all the known members of the class, except the pearly nautilus, *Nautilus pompilius*, have these habits in common, the distinguishing terms are hardly apposite. As, however, they are conventionally accepted and understood, I prefer to use them. As with other mollusks, so with the cephalopods, some have shells, and some are naked or have only rudimentary shells. The Argonaut, or paper nautilus, has been regarded as the analogue of the snail, which, like it, secretes an *external* shell for the protection of its soft body; and the octopus as that of the garden slug, which, having organs like those of the snail, as the octopus has organs like those of the shell-bearing argonaut, has no shell. The cuttles and squids may be compared to some of the sea-slugs, as *Aplysia* and *Bullæa*, and to some land-slugs, as *Parmacella* and *Limax*, which have an *internal* shell.

The argonaut and the other families of the cephalopods do not come within the scope of this treatise; we will therefore confine our attention to the three above mentioned. Of the anatomy and homology of the *Octopus*, *Sepia*, and *Calamary* we need say no more than will suffice to show in what manner they resemble each other, and wherein they differ, in order that we may the more clearly perceive to which of them the story of the Kraken probably owes its origin.

The octopus, the sepia, and the calamary are all constructed on one fundamental plan. A bag of fleshy muscular skin, called the mantle-sac, contains the organs of the body, heart, stomach, liver, intestines, a pair of gills by which oxygen is absorbed from the water for the puri-

fication of the blood, and an excurrent tube by which the water thus deprived of its life-sustaining gas is expelled. The outrush of water with more or less force, from this "syphon-tube," is also the principal source of locomotion when the animal is swimming, as it propels it backward—not by the striking of the expelled fluid against the surrounding water, as is generally supposed; but by the unbalanced pressure of the fluid acting inside the body in the direction in which the creature goes. Into this syphon-tube, or funnel, opens, by a special duct, the ink-bag; and from it is squirted at will the intensely black fluid therein secreted. I doubt very much the correctness of the statement mentioned by Pontoppidan and others, that the cuttle ejects its ink with a desire to lie hidden and in ambush for its intended prey, or with the intention to attract fish within its reach by their partiality for the musky odour of this secretion. It may be so, but during the long period that I had these animals under close observation at the Brighton Aquarium, I never witnessed such an incident. I believe that the emission of the ink is a symptom of fear, and is only employed as a means of concealment from a suspected enemy. I have found, that when first taken, the *Sepia*, of all its kind, is the most sensitively timid. Its keen, unwinking eye watches for and perceives the slightest movement of its captor; and if even most cautiously looked at from above, its ink is belched forth in eddying volumes, rolling over and over like the smoke which follows the discharge of a great gun from a ship's port, and mixes with marvellous rapidity with the surrounding water. But, like all of its class, the *Sepia* is very intelligent. It soon learns to discriminate between friend and foe, and ultimately becomes very tame, and ceases to shoot its ink, unless it be teased and excited. By

means of the communication between the ink-bag and the locomotor tube, it happens that when the ink is ejected, a stream of water is forcibly emitted with it, and thus the very effort for escape serves the double purpose of propelling the creature away from danger, and discolouring the water in which it moves. Oppian has well described this—

“ The endangered cuttle thus evades his fears,
And native hoards of fluids safely wears.
A pitchy ink peculiar glands supply
Whose shades the sharpest beam of light defy.
Pursued, he bids the sable fountains flow,
And, wrapt in clouds, eludes the impending foe.
The fish retreats unseen, while self-born night
With pious shade befriends her parent’s flight.”

Professor Owen has remarked that the ejection of the ink of the cephalopods serves by its colour as a means of defence, as corresponding secretions in some of the mammalia by their odour.

It is worthy of notice that the pearly nautilus and the allied fossil forms are without this means of concealment, which their strong external shells render unnecessary for their protection.

From the sac-like body containing the various organs, protrudes a head, globose in shape, and containing a brain, and furnished with a pair of strong, horny mandibles, which bite vertically, like the beak of a parrot. By these the flesh of prey is torn and partly masticated, and within them lies the tongue, covered with recurved and retractile teeth, like that of its distant relatives, the whelk, limpet, &c., by which the food is conducted to the gullet. Around this head is, as I have said, the organ which is equivalent to the foot in other molluscs—that by which the slug and the snail crawl—only that the head is

Placed in the centre, instead of in the front of it, and it is divided into segments, which radiate from this central head. These segments are very flexible, and capable of movement in every direction, and are thus developed into arms, prehensile limbs, by which their owner can seize and hold its living prey. That this may be more perfectly accomplished, these arms are studded along their inner surface with rows of sucking discs, in each of which, by means of a retractile piston, a vacuum can be produced. The consequent pressure of the outer atmosphere or water, causes them to adhere firmly to any substance to which they are applied, whether stone, fish, crustacean, or flesh of man.

But, although in all these highly-organised head-footed mollusks the same general build prevails, it is admirably modified in each of them to suit certain habits and necessities. Thus the octopus, being a shore dweller, its soft and pliant, but very tough body, having merely a very small and rudimentary indication of an internal shell (just a little "style") is exactly adapted for wedging itself amongst crevices of rocks. A large, rigid, cellular float, or "sepiostaire," such as *Sepia* possesses, or a long, horny pen such as *Loligo* has, would be in the way, and worse than useless in such places as the octopus inhabits. Its eight long powerful arms or feet are precisely fitted for clambering over rocks and stones, and as its food of course consists principally of the living things most abundant in such localities, namely, the shore-crabs, its great flexible suckers, devoid of hooks or horny armature, are exactly adapted to firm and air-tight attachment to the smooth shells of the crustacea.

Unlike the octopus, which is capable only of short flights through the water, the "cuttles" and "squids," such as

Sepia and *Loligo*, are all free swimmers. For them it is necessary for accuracy of natation that their soft, and in the squids long bodies, should be supported by such a framework as they possess. In *Sepia*, the mantle-sac is flattened horizontally all along its lateral edges so as to form a pair of fins, which nearly surround the trunk. These fins could never be used, as they are, to enable the animal to poise itself delicately in the water by means of their beautiful undulations, which I have often watched with delight, if their attached edges were not kept in a straight line on either side. Then, these ten-footed or ten-armed genera have not, because they need them not, eight long,

FIG. I.—BEAK AND ARMS OF A DECAPOD CUTTLE.

a, the eight shorter arms ; *t*, the tentacles ; *f*, the funnel, or locomotor tube.

strong and highly mobile arms like those of the octopus, nor have they large suckers upon them. Whereas a great length of reach is an advantage to the octopus, animals which are purely swimmers, and which hunt and overtake their prey by speed, would be impeded by having to drag after them a bundle of stout, lengthy appendages trailing heavily astern. Their eight pedal arms are short and comparatively weak, though strong enough, in individuals such as are regarded on our own coasts as fullgrown, to seize and hold

a fish or crustacean as strong as a good sized shore-crab. But, as compensation for the shortness of the eight arms, they are provided with two others more than three times the length of the short ones. These are so slender that they generally lie coiled up in a spiral cone in two pockets, one on each side, just below the eye, when the animal is quiescent, and are only seen when it takes its food. These long, slender tentacular arms are expanded at their extremity, and the inner surface of their enlarged part is studded with suckers—some of them larger in size than those on the eight shorter arms. As the food of these swimmers consists, of course, chiefly of fish, their sucking disks are curiously modified for the better retention of a slippery captive. A horny ring with a sharply serrated edge is imbedded in the outer circumference of each of them, and when a vacuum is formed, the keen, saw-like teeth are pressed into the skin or scales of the unfortunate prisoner, and deprive it of the slightest chance of escape.

The manner in which the eight-armed and ten-armed cephalopods capture their prey is similar in principle and plan, but differs in action in accordance with their mode of life. The ordinary habit of the octopus is either to rest suspended to the side of a rock to which it clings with the suckers of several of its arms, or to remain lurking in some favourite cranny ; its body thrust for protection and concealment well back in the interior of the recess ; its bright eyes keenly on the watch ; three or four of its limbs firmly attached to the walls of its hiding place—the others gently waving, gliding, and feeling about in the water, as if to maintain its vigilance, and keep itself always on the alert, and in readiness to pounce on any unfortunate wayfarer that may pass near its den. To a shore-crab that comes within its reach the slightest contact with one of those lithe

FIG. 2.—THE OCTOPUS (*Octopus vulgaris*).

arms is fatal. Instantaneously as pull of trigger brings down a bird, or touch of electric wire explodes a torpedo or a mining fuse, the pistons of the series of suckers are simultaneously drawn inward, the air is removed from the pneumatic holders, and a vacuum created in each: the crab tries to escape, but in a second is completely pinioned: not a movement, not a struggle is possible; each leg, each claw is grasped all over by suckers, enfolded in them, stretched out to its fullest extent by them; the back of the carapace is completely covered by the tenacious disks, brought together by the adaptable contractions of the limb, and ranged in close order, shoulder to shoulder, touching each other; and the pressure of the air is so great that nothing can effect the relaxation of their retentive power but the destruction of the air-pump that works them, or the closing of the throttle-valve by which they are connected with it. Meanwhile the abdominal plates of the captive crab are dragged towards the mouth; the black tip of the hard horny beak is seen for a single instant protruding from the circular orifice in the centre of the radiation of the arms; and, the next, has crushed through the shell, and is buried deep in the flesh of the victim.

Unlike the skulking, hiding octopus, its ten-armed relative, the *Sepia* loves the daylight and the freedom of the upper water. Its predatory acts are not those of a concealed and ambushed brigand lying in wait behind a rock, or peeping furtively from within the gloomy shadow of a cave; but it may better be compared to the war-like Comanche vidette seated gracefully on his horse, and scanning from some elevated knoll a wide expanse of prairie, in readiness to swoop upon a weak or unarmed foe. Poised near the surface of the water, like a hawk in the air, the *Sepia* moves gently to and fro by graceful undulations of

its lateral fins,—an exquisite play of colour occasionally taking place over its beautifully barred and mottled back. When thus tranquil, its eight pedal arms are usually brought close together, and droop in front of its head, like the trunk of an elephant, shortened ; its two longer tentacular arms being coiled up within their pouches and unseen. Only when some small fish approaches it does it arouse itself. Then, its eyes dilate, and its colours become more bright and vivid. It carefully takes aim, advancing or retreating to such a distance as will just allow the two hidden tentacles to reach the quarry when they shall be shot out. Next, the two highest or central feet are lifted up, and the three others on each side are spread aside, so that they may be all out of the way of the two concealed tentacles, presently to be launched forth ; and then, in a moment—so instantaneously that the eye of an observer, be he ever so watchful, can hardly see the act—this pair of tentacles, side by side, are projected and withdrawn, as if in a flash. The fish or shrimp has vanished, the suckers of the dilated ends of the tentacles having adhered to it, and left it, as they re-entered their pouches, within the fatal “cuddle,” or embrace, where it is torn to pieces by the devouring beak.* This action of the tentacles of the decapods is the most rapid motion that I know of in the whole animal kingdom—not excepting even that of the

* See an excellent article in the *Field*, Sept. 2, 1876, on the ‘Ten Footed Cuttle’ (*Sepia officinalis*), by the late Mr. W. A. Lloyd, an earnest and accomplished aquatic zoologist ; eccentric, but in all that relates to the construction and management of an aquarium a master of his craft. It was his wish that in any future edition of my little book on the Octopus, or other writings on the cephalopods, I should use the woodcuts which illustrated his articles on *Sepia* and *Octopus*. By the kind permission of the proprietors of the *Field*, I reproduce them in suitable size for these pages.

FIG. 3.—THE CUTTLE (*Sepia officinalis*).

tongue of the toad and the lizard. These long tentacles are not used when the food is within reach of the shorter arms.

The calamaries or squids of our British Seas seize their prey in the same manner as *Sepia*, and the description of one will suffice for both. But there exist two groups of them, which are armed with curved and sharp-pointed hooks or claws, either in addition to, or instead of suckers. In the one group (*Onychoteuthis*), the hooks are restricted to the extremities of the pair of tentacles, in the other (*Enoploteuthis*), both the tentacles and the shorter arms have hooks. Professor Owen, in his description of these hook-armed calamaries in the *Cyclopædia of Anatomy*, notices also another structure which adds greatly to their prehensile power (Fig. 4). "At the extremity of the long tentacles a cluster of small, simple, unarmed suckers may be observed at the base of the expanded part. When these latter suckers are applied to one another the tentacles are securely locked together at that part, and the united strength of both the elongated peduncles can be applied to drag towards the mouth any resisting object which has been grappled by the terminal hooks. There is no mechanical contrivance which surpasses this structure; art has remotely imitated it in the fabrication of the obstetrical forceps, in which either blade can be used separately, or, by the inter-locking of a temporary blade, be made to act in combination."

The cephalopods obtain and eat their food very much like the rapacious birds. They are the falcons of the sea. Some of them, like *Onychoteuthis*, strike their prey with talons and suckers also, others lay hold of it with suckers alone; but they all tear the flesh with their beaks, and swallow and digest their food in the same manner as the hawk or vulture.

The *Sepia*, the owner of the broad, flattened bone, has a decided predilection for the vicinity of the shore, and for comparatively shallow water. It there attaches its grape-like eggs to some convenient stone or growing alga, and delights occasionally to sink to the bottom, and there to rest half covered by the sand, a habit for which the form of its body is well adapted. But the calamaries—they of the horny pen—prefer the wide waters of the open ocean; and although they, too, especially the smaller species, are common upon the coasts, they are frequently met with far out at sea, and away from any land. The elongated and almost arrow-like shape of their bodies enables them to glide through the water with great rapidity, and the momentum exerted by a vigorous out-rush from their syphon-tube is sometimes so great that when the opposite pressure thus produced is so exerted as to cause them to take an upward direction they leap out of the water to so great a height as to fall on the decks of ships; and are, therefore, called by sailors, “flying squids.” Their spawn is very different from that of either octopus, or sepia. It consists of dozens of semi-trans-

FIG. 4.—HOOKED TENTACLES OF *Onychoteuthis*.

parent, gelatinous, slender, cylindrical sheaths, about four or five inches long, each containing many ova imbedded in it (making a total number of about 40,000 embryos), all springing from a common centre and resembling a mop without a handle. I have never seen any of these "sea-mops" attached to anything, and the pelagic habits of the calamaries render it probable that they are left floating on the surface of the sea.

Having made ourselves acquainted with the structure and habits of these three divisions of the eight-footed and ten-footed mollusks, let us take evidence as to the size to which they are respectively known to attain, and the degree in which they may be regarded as dangerous to man.

An octopus from our own coasts having arms two feet in length may be considered a rather large specimen; and Dr. J. E. Gray, who was always most kindly ready to place at the disposal of any sincere inquirer the vast store of knowledge laid up in his wonderful memory, told me that "there is not one in the British Museum which exceeds this size, or which would not go into a quart pot—body, arms and all." The largest British specimen I have hitherto seen had arms 2 ft. 6 in. long. We have sufficient evidence, however, that it exceeds this in the South of France, and along the Spanish and Italian coasts of the Mediterranean; and my deceased friend John Keast Lord tells us in his book, '*The Naturalist in British Columbia*,' that he saw and measured, in Vancouver's Island, an octopus which had arms five feet long.

I have often been asked whether an octopus of the ordinary size can really be dangerous to bathers. Decidedly, "Yes," in certain situations. The holding power of its numerous suckers is enormous. It is almost impossible forcibly to detach it from its adhesion

to a rock or the flat bottom of a tank ; and if a large one happened to fix one or more of its strong, tough arms on the leg of a swimmer whilst the others held firmly to a rock, I doubt if the man could disengage himself under water by mere strength, before being exhausted. Fortunately the octopus can be made to relax its hold by grasping it tightly round the "throat" (if I may so call it), and it may be well that this should be known.

That men are occasionally drowned by these creatures is, unhappily, a fact too well attested. I have elsewhere* related several instances of this having occurred. Omitting those, I will give two or three others which have since come under my notice. Sir Grenville Temple, in his 'Excursions in the Mediterranean Sea,' tells how a Sardinian captain, whilst bathing at Jerbeh, was seized and drowned by an octopus. When his body was found, his limbs were bound together by the arms of the animal ; and this took place in water only four feet deep.

Mr. J. K. Lord's account of the formidable strength of these creatures in Oregon is confirmed by an incident recorded in the *Weekly Oregonian* (the principal paper of Oregon) of October 6th, 1877. A few days before that date an Indian woman, whilst bathing, was held beneath the surface by an octopus, and drowned. The body was discovered on the following day in the horrid embrace of the creature. Indians dived down and with their knives severed the arms of the octopus and recovered the corpse.

Mr. Clemens Laming, in his book, 'The French in Algiers,' writes :—"The soldiers were in the habit of bathing in the sea every evening, and from time to time several of them disappeared—no one knew how. Bathing was, in

* See 'The Octopus ; or, the Devil-fish of Fiction and of Fact.' 1873. Chapman and Hall.

consequence, strictly forbidden ; in spite of which several men went into the water one evening. Suddenly one of them screamed for help, and when several others rushed to his assistance they found that an octopus had seized him by the leg by four of its arms whilst it clung to the rock with the rest. The soldiers brought the 'monster' home with them, and out of revenge they boiled it alive and ate it. This adventure accounted for the disappearance of the other soldiers."

The Rev. W. Wyatt Gill, who for more than a quarter of a century has resided as a missionary amongst the inhabitants of the Hervey Islands, and with whom I had the pleasure of conversing on this subject when he was in England in 1875, described in the *Leisure Hour* of April 20th, 1872, another mode of attack by which an octopus might deprive a man of life. A servant of his went diving for "poules" (octopods), leaving his son in charge of the canoe. After a short time he rose to the surface, his arms free, but his nostrils and mouth completely covered by a large octopus. If his son had not promptly torn the living plaister from off his face he must have been suffocated—a fate which actually befel some years previously a man who foolishly went diving alone.

In *Appleton's American Journal of Science and Art*, January 31st, 1874, a correspondent describes an attack by an octopus on a diver who was at work on the wreck of a sunken steamer off the coast of Florida. The man, a powerful Irishman, was helpless in its grasp, and would have been drowned if he had not been quickly brought to the surface ; for when dragged on to the raft from which he had descended, he fainted, and his companions were unable to pull the creature from its hold upon him until they had dealt it a sharp blow across its baggy body.

A similar incident occurred to the government diver of the colony of Victoria, Australia. Whilst pursuing his avocation in the estuary of the river Moyne he was seized by an octopus. He killed it by striking it with an iron bar, and brought to shore with him a portion of it with the arms more than three feet long.

Mr. Laurence Oliphant, in his 'China and Japan,' describes a Japanese show, which consisted of "a series of groups of figures carved in wood, the size of life, and as cleverly coloured as Madame Tussaud's wax-works. One of these was a group of women bathing in the sea. One of them had been caught in the folds of a cuttle-fish; the others, in alarm, were escaping, leaving their companion to her fate. The cuttle-fish was represented on a huge scale, its eyes, eyelids, and mouth being made to move simultaneously by a man inside the head."

An attack of this kind is most artistically represented in a small Japanese ivory-carving in the possession of Mr. Bartlett, of the Zoological Gardens.*

The Japanese are well acquainted with the octopus; for it is commonly depicted on their ornaments, and forms no unimportant item in their fisheries.

I have recently had an opportunity of inspecting a most curious Japanese book, in the possession of my friend Mr. W. B. Tegetmeier, which is chiefly devoted to the representations of the fisheries and fish-curing processes of the country. It is in three volumes, and is entitled, 'Land and Sea Products,' by Ki Kone. It is evidently ancient, for it is slightly worm-eaten, but the plates, each 12 inches by

* This carving was figured in illustration of an interesting paper by Professor Owen, C.B., F.R.S., &c., "On some new and rare Cephalopoda," in the Transactions of the Zoological Society, April 20, 1880.

8 inches, are full of vigour. Two of these illustrate in a very interesting manner the subject before us, and by the kindness of Mr. Tegetmeier I am able to give facsimiles of them, which appeared with an article by him on this book, in the *Field* of March 14th, 1874. Fig. 5 represents a fisherman in a boat out at sea : a gigantic octopus has thrown one of its arms over the side of the boat ; the man, who is alone, has started forward from the stern of the boat, and has succeeded, by means of a large knife attached to a long handle, in lopping off the dangerous limb of his enemy. As Mr. Tegetmeier says, "From the extreme manner of fact in which all these engravings are made, and the total absence of exaggeration in any other representation, I cannot but regard the relative sizes of the man, the boat, and the octopus, as correctly given, in which case we have evidence of the existence of gigantic cephalopods in Japanese waters." The only doubt I have is whether the fisherman correctly described his assailant as an octopus, and whether it was not a calamary. Fig. 6 is a vivid picture of a fishmonger's shop in a market, under the awning of which may be seen two arms of a gigantic cuttle hung up for sale as food. These are evidently of most unusual size, judging from the action of the lookers on ; the one to the left, with a tall stand or case on his back, like a Parisian cocoa-vendor, is holding out his hand in mute astonishment ; whilst the attention of the smaller personage in the right-hand corner is directed to the suspended arms of the cuttle by the man nearest to him ; who is pointing to them with upraised hand. In another plate in this most interesting work a Japanese mode of fishing for cuttles is delineated. A man in a boat is tossing crabs, one at a time, into the sea, and when a cuttle rises at the bait he spears it with a trident and tosses it into the boat.

FIG. 5.—JAPANESE FISHERMAN ATTACKED BY A CUTTLE.

FIG. 6.—ARMS OF A GREAT CUTTLE EXHIBITED IN A JAPANESE FISHMONGER'S SHOP.

The octopus, therefore, though not abundant on our own coasts, is found in every sea in the temperate zone ; and in so far as that it secretes an ink with which it can render the water turbid, and has many radiating arms with which it can seize and drown a man, it possesses certain attributes of the Kraken ; but we have no authentic knowledge of its ever attaining to greater dimensions than I have stated, nor does it bask on the surface of the sea. It is not amongst the *Octopidæ* therefore that we must look for a solution of the mystery.

The basking condition is fulfilled by the *Sepia* ; and its flattened back, supported and rendered hard and firm to the touch by the calcareous *sepiostaire* beneath the skin, is broader in proportion than that of the octopus or the squid. Thus *Sepia* might pass as a microscopic miniature of the great Scandinavian monster. But it lacks the character of size. We have no reason to believe that any true *Sepia* exists, as the family is now understood, that has a body more than eighteen inches long. If it were otherwise it would be more likely to be known of this family than of its relatives, for its lightly constructed and well known "cuttle-bone" would float on the surface for many weeks after the death of its owner, and large specimens of it would be seen and recognised from passing ships.

As we can find no species of the *Octopidæ* or *Sepiidæ* which can furnish a pretext for the stories told of the Kraken, we must try to ascertain how far a similitude to it may be traced in the third family we have discussed, the *Teuthidæ*.

The belief in the existence of gigantic cuttles is an ancient one. Aristotle mentions it, and Pliny tells of an enormous polypus which at Carteia, in Grenada—an old and important Roman colony near Gibraltar—used to

come out of the sea at night, and carry off and devour salted tunnies from the curing depots on the shore ; and adds that when it was at last killed, the head of it (they used to call the body the head, because in swimming it goes in advance) was found to weigh 700 lbs. Ælian records a similar incident, and describes his monster as crushing in its arms the barrels of salt fish to get at the contents. These two must have been octopods if they were anything ; the word "polypus" thus especially designates it, and moreover, the free-swimming cuttles and squids would be helpless if stranded on the shore. Some of the old writers seem to have aimed rather at making their histories sensational than at carefully investigating the credibility or the contrary of the highly coloured reports brought to them. These were, of course, gross exaggerations, but there was generally a substratum of truth in them. They were based on the rare occurrence of specimens, smaller certainly, but still enormous, of some known species, and in most cases the worst that can be said of their authors is that they were culpably careless and foolishly credulous.

Unhappily so lenient a judgment cannot be passed on some comparatively recent writers. Denys de Montfort, half a century later than Pontoppidan, not only professed to believe in the Kraken, but also in the existence of another gigantic animal distinct from it ; a colossal *poulpe*, or octopus, compared with which Pliny's was a mere pigmy. In a drawing fitter to decorate the outside of a showman's caravan at a fair than seriously to illustrate a work on natural history,* he depicted this tremendous cuttle as throwing its arms over a three masted vessel,

* ' Histoire Naturelle générale et particulière des Mollusques,' vol. ii., p. 256.

FIG. 7.—FACSIMILE OF DE MONTFORT'S "*Poulpe colossal.*"

snapping off its masts, tearing down the yards, and on the point of dragging it to the bottom, if the crew had not succeeded in cutting off its immense limbs with cutlasses and hatchets. De Montfort had good opportunities of obtaining information, for he was at one time an assistant in the geological department of the Museum of Natural History, in Paris; and wrote a work on conchology,* besides that already referred to. But it appears to have been his deliberate purpose to cajole the public; for it is reported that he exclaimed to M. Defrance: "If my entangled ship is accepted, I will make my 'colossal poulpe' overthrow a whole fleet." Accordingly we find him gravely declaring† that one of the great victories of the British navy was converted into a disaster by the monsters which are the subject of his history. He boldly asserted that the six men-of-war captured from the French by Admiral Rodney in the West Indies on the 12th of April, 1782, together with four British ships detached from his fleet to convoy the prizes, were all suddenly engulfed in the waves on the night of the battle under such circumstances as showed that the catastrophe was caused by colossal cuttles, and not by a gale or any ordinary casualty.

Unfortunately for De Montfort, the inexorable logic of facts not only annihilates his startling theory, but demonstrates the reckless falsity of his plausible statements. The captured vessels did not sink on the night of the action, but were all sent to Jamaica to refit, and arrived there safely. Five months afterwards, however, a convoy of nine line-of-battle ships (amongst which were Rodney's prizes), one frigate, and about a hundred merchantmen, were dispersed, whilst on their voyage to England, by a violent

* 'Conchyliologie Systématique.'

† 'Hist. Nat. des Moll.,' vol. ii., pp. 358 to 368.

storm, during which some of them unfortunately foundered. The various accidents which preceded the loss of these vessels was related in evidence to the Admiralty by the survivors, and official documents prove that De Montfort's fleet-destroying *poulpe* was an invention of his own, and had no part whatever in the disaster that he attributed to it.

I have been told, but cannot vouch for the truth of the report, that De Montfort's propensity to write that which was not true culminated in his committing forgery, and that he died in the galleys. But he records a statement of Captain Jean Magnus Dens, said to have been a respectable and veracious man, who, after having made several voyages to China as a master trader, retired from a seafaring life and lived at Dunkirk. He told De Montfort that in one of his voyages, whilst crossing from St. Helena to Cape Negro, he was becalmed, and took advantage of the enforced idleness of the crew to have the vessel scraped and painted. Whilst three of his men were standing on planks slung over the side, an enormous cuttle rose from the water, and threw one of its arms around two of the sailors, whom it tore away, with the scaffolding on which they stood. With another arm it seized the third man, who held on tightly to the rigging, and shouted for help. His shipmates ran to his assistance, and succeeded in rescuing him by cutting away the creature's arm with axes and knives, but he died delirious on the following night. The captain tried to save the other two sailors by killing the animal, and drove several harpoons into it; but they broke away, and the men were carried down by the monster.

The arm cut off was said to have been twenty-five feet long, and as thick as the mizen-yard, and to have had on it suckers as big as saucepan-lids. I believe the old sea-

captain's narrative of the incident to be true ; the dimensions given by De Montfort are wilfully and deliberately false. The belief in the power of the cuttle to sink a ship and devour her crew is as widely spread over the surface of the globe, as it is ancient in point of time. I have been told by a friend that he saw in a shop in China a picture of a cuttle embracing a junk, apparently of about 300 tons burthen, and helping itself to the sailors, as one picks gooseberries off a bush.

Traditions of a monstrous cuttle attacking and destroying ships are current also at the present day in the Polynesian Islands. Mr. Gill, the missionary previously quoted, tells us* that the natives of Aitutaki, in the Hervey group, have a legend of a famous explorer, named Rata, who built a double canoe, decked and rigged it, and then started off in quest of adventures. At the prow was stationed the dauntless Nganaoa, armed with a long spear and ready to slay all monsters. One day when speeding pleasantly over the ocean, the voice of the ever vigilant Nganaoa was heard : " O Rata ! yonder is a terrible enemy starting up from ocean depths." It proved to be an octopus (query, squid ?) of extraordinary dimensions. Its huge tentacles encircled the vessel in their embrace, threatening its instant destruction. At this critical moment Nganaoa seized his spear, and fearlessly drove it through the head of the creature. The tentacles slowly relaxed, and the dead monster floated off on the surface of the ocean.

Passing from the early records of the appearance of cuttles of unusual size, and the current as well as the traditional belief in their existence by the inhabitants of many countries, let us take the testimony of travellers and naturalists who have a right to be regarded as com-

* *Leisure Hour*, October, 1875, p. 636.

petent observers. In so doing we must bear in mind that until Professor Owen propounded the very clear and convenient classification now universally adopted, the squids, as well as the eight-footed *Octopidæ*, were all grouped under the title of *Sepia*.

Pernetty, describing a voyage made by him in the years 1763-4,* mentions gigantic cuttles met with in the Southern Seas.

Shortly afterwards, during the first week in March 1769, Banks and Solander, the scientific fellow-voyagers with Lieutenant Cook (afterwards the celebrated Captain Cook), in H.M.S. *Endeavour*, found in the North Pacific, in latitude $38^{\circ} 44'$ S. and longitude $110^{\circ} 33'$ W., a large calamary which had just been killed by the birds, and was floating in a mangled condition on the water. Its arms were furnished, instead of suckers, with a double row of very sharp talons, which resembled those of a cat, and, like them, were retractable into a sheath of skin from which they might be thrust at pleasure. Of this cuttle they say, with evident pleasurable remembrance of a savoury meal, they made one of the best soups they ever tasted. Professor Owen tells us, in the paper already referred to, that when he was curator of the Hunterian Museum of the Royal College of Surgeons, and preparing, in 1829, his first catalogue thereof, he was struck with the number of oceanic invertebrates which Hunter had obtained. He learned from Mr. Clift that Hunter had supplied Mr. (afterwards Sir Joseph) Banks with stoppered bottles containing alcohol, in which to preserve the new marine animals that he might meet with during the circumnavigatory voyage about to be undertaken by Cook. Thinking it probable that Banks might have stowed some parts of this great hook-armed squid in one of these bottles for

* 'Voyage aux Iles Malouines.'

his anatomical friend, he searched for, and found in a bottle marked "J. B.," portions of its arms, the beak with tongue, a heart ventricle, &c., and, amongst the dry preparations, the terminal part of the body, with an attached pair of rhomboidal fins. The remainder had furnished Cook and his companions Banks and Solander with a welcome change of diet in the commander's cabin of the *Endeavour*. As the inner surface of the arms of the squid, as well as the terminals of its tentacles, were studded with hooks, Professor Owen named it *Enoploteuthis Cookii*. He estimates the diameter of the tail fin at 15 inches, the length of its body 3 feet, of its head 10 inches, of the shorter arms 16 inches, and of the longer tentacles about the same as its body—thus giving a total length of about 6 ft. 9 in. Although individuals of other species, of larger dimensions, are known to have existed, this is the largest specimen of the hook-armed calamaries that has been scientifically examined. It would have been a formidable antagonist to a man under circumstances favourable to the exertion of its strength, and the use of its prehensile and lacerating talons.

Peron,* the well-known French zoologist, mentions having seen at sea, in 1801, not far from Van Diemen's Land, at a very little distance from his ship, *Le Géographe*, a "Sepia," of the size of a barrel, rolling with noise on the waves; its arms, between 6 and 7 feet long, and 6 or 7 inches in diameter at the base, extended on the surface, and writhing about like great snakes. He recognised in this, and no doubt correctly, one of the calamaries. The arms that he saw were evidently the animal's shorter ones, as under such circumstances, with neither enemy to combat nor prey to seize at the moment, the longer tentacles would remain concealed.

* 'Voyage de Découvertes aux Terres Australes.'

Quoy and Gaimard* report that in the Atlantic Ocean, near the Equator, they found the remains of an enormous calamary, half eaten by the sharks and birds, which could not have weighed less, when entire, than 200 lbs. A portion of this was secured, and is preserved in the Museum of Natural History, Paris.

Captain Sander Rang† records having fallen in with, in mid-ocean, a species distinct from the others, of a dark red colour, having short arms, and a body the size of a hogshead.

In a manuscript by Paulsen (referred to by Professor Steenstrup, at a meeting of Scandinavian naturalists at Copenhagen in 1847) is a description of a large calamary, cast ashore on the coast of Zeeland, which the latter named *Architeuthis monachus*. Its body measured 21 feet, and its tentacles 18 feet, making a total of 39 feet.

In 1854 another was stranded at the Skag in Jutland, which Professor Steenstrup believed to belong to the same genus as the preceding, but to be of a different species, and called it *Architeuthis dux*. The body was cut in pieces by the fishermen for bait, and furnished many wheelbarrow loads. Mr. Gwyn Jeffreys‡ says Dr. Mörch informed him that the beak of this animal was nine inches long. He adds that another huge cephalopod was stranded in 1860 or 1861, between Hillswick and Scalloway, on the west of Shetland. From a communication received by Professor Allman, it appears that its tentacles were 16 feet long, the pedal arms about half that length, and the mantle sac 7 feet. The largest suckers examined by Professor Allman were three-quarters of an inch in diameter.

We have also the statement of the officers and crew of

* 'Voyage de l'Uranie : Zoologie,' vol. i., part 2, p. 411. 1824.

† 'Manuel des Mollusques,' p. 86.

‡ 'British Conchology,' vol. v., p. 124.

FIG. 8.—GIGANTIC CALAMARY CAUGHT BY THE FRENCH DESPATCH VESSEL 'ALECTON,' NEAR TENERIFFE.

the French despatch steamer, *Alecton*, commanded by Lieutenant Bouyer, describing their having met with a great calamary on the 30th of November, 1861, between Madeira and Teneriffe. It was seen about noon on that day floating on the surface of the water, and the vessel was stopped with a view to its capture. Many bullets were aimed at it, but they passed through its soft flesh without doing it much injury, until at length "the waves were observed to be covered with foam and blood." It had probably discharged the contents of its ink-bag; for a strong odour of musk immediately became preceptible—a perfume which I have already mentioned as appertaining to the ink of many of the cephalopoda, and also as being one of the reputed attributes of the Kraken. Harpoons were thrust into it, but would not hold in the yielding flesh; and the animal broke adrift from them, and, diving beneath the vessel, came up on the other side. The crew wished to launch a boat that they might attack it at closer quarters, but the commander forbade this, not feeling justified in risking the lives of his men. A rope with a running knot was, however, slipped over it, and held fast at the junction of the broad caudal fin; but when an attempt was made to hoist it on deck the enormous weight caused the rope to cut through the flesh, and all but the hinder part of the body fell back into the sea and disappeared. M. Berthelot, the French consul at Teneriffe, saw the fin and posterior portion of the animal on board the *Alecton* ten days afterwards, and sent a report of the occurrence to the Paris Academy of Sciences. The body of this great squid, which, like Rang's specimen, was of a deep-red colour, was estimated to have been from 16 feet to 18 feet long, without reckoning the length of its formidable arms.*

* In the accompanying illustration, the size of the squid is exaggerated, but not so much as has been supposed.

These are statements made by men who, by their intelligence, character, and position, are entitled to respect and credence ; and whose evidence would be accepted without question or hesitation in any court of law. There is, moreover, a remarkable coincidence of particulars in their several accounts, which gives great importance to their combined testimony.

But, fortunately, we are not left dependent on documentary evidence alone, nor with the option of accepting or rejecting, as caprice or prejudice may prompt us, the narratives of those who have told us they have seen what we have not. Portions of cuttles of extraordinary size are preserved in several European museums. In the collection of the Faculty of Sciences at Montpellier is one six feet long, taken by fishermen at Cette, which Professor Steenstrup has identified as *Ommastrephes pteropus*. One of the same species, which was formerly in the possession of M. Eschricht, who received it from Marseilles, may be seen in the museum at Copenhagen. The body of another, analogous to these, is exhibited in the Museum of Trieste : it was taken on the coast of Dalmatia. At the meeting of the British Association at Plymouth in 1841, Colonel Smith exhibited drawings of the beak and other parts of a very large calamary preserved at Haarlem ; and M. P. Harting, in 1860, described in the Memoirs of the Royal Scientific Academy of Amsterdam portions of two extant in other collections in Holland, one of which he believes to be Steenstrup's *Architeuthis dux*, a species which he regards as identical with *Ommastrephes todarus* of D'Orbigny.

Still there remained a residuum of doubt in the minds of naturalists and the public concerning the existence of gigantic cuttles until, towards the close of the year 1873, two specimens were encountered on the coast of New-

foundland, and a portion of one and the whole of the other, were brought ashore, and preserved for examination by competent zoologists.

The circumstances under which the first was seen, as sensationally described by the Rev. M. Harvey, Presbyterian minister of St. John's, Newfoundland, in a letter to Principal Dawson, of McGill College, were, briefly and soberly, as follows :—Two fishermen were out in a small punt on the 26th of October, 1873, near the eastern end of Belle Isle, Conception Bay, about nine miles from St. John's. Observing some object floating on the water at a short distance, they rowed towards it, supposing it to be the *débris* of a wreck. On reaching it one of them struck it with his "gaff," when immediately it showed signs of life, and shot out its two tentacular arms, as if to seize its antagonists. The other man, named Theophilus Picot, though naturally alarmed, severed both arms with an axe as they lay on the gunwale of the boat, whereupon the animal moved off, and ejected a quantity of inky fluid which darkened the surrounding water for a considerable distance. The men went home, and, as fishermen will, magnified their lost "fish." They "estimated" the body to have been 60 feet in length, and 10 feet across the tail fin; and declared that when the "fish" attacked them "it reared a parrot-like beak which was as big as a six-gallon keg."

All this, in the excitement of the moment, Mr. Harvey appears to have been willing to believe, and related without the expression of a doubt. Fortunately, he was able to obtain from the fishermen a portion of one of the tentacular arms which they had chopped off with the axe, and by so doing rendered good service to science. This fragment (Fig. 9), as measured by Mr. Alexander Murray, provincial geologist of Newfoundland, and Professor Verrill, of Yale

College, Connecticut, is 17 feet long and $3\frac{1}{2}$ feet in circumference. It is now in St. John's Museum. By careful calculation of its girth, the breadth and circumference of the expanded sucker-bearing portion at its extremity, and the diameter of the suckers, Professor Verrill has computed its dimensions to have been as follows:—Length of body 10 feet; diameter of body 2 feet 5 inches. Long tentacular arms 32 feet; head 2 feet; total length about 44 feet. The upper mandible of the beak, instead of being “as large as a six-gallon keg” would be about 3 inches long, and the lower mandible $1\frac{1}{2}$ inch long. From the size of the large suckers

FIG. 9.—TENTACLE OF A GREAT CALAMARY (*Architeuthis princeps*) TAKEN IN CONCEPTION BAY, NEWFOUNDLAND, OCT. 26, 1873.

relatively to those of another specimen to be presently described, he regards it as probable that this individual was a female.

In November, 1873—about three weeks after the occurrence in Conception Bay—another calamary somewhat smaller than the preceding, but of the same species, also came into Mr. Harvey's possession. Three fishermen, when hauling their herring-net in Logie Bay, about three miles from St. John's, found the huge animal entangled in its folds. With great difficulty they succeeded in despatching it and

bringing it ashore, having been compelled to cut off its head before they could get it into their boat.

The body of this specimen was over 7 feet long; the caudal fin 22 inches broad; the two long tentacular arms

FIG. 10.—HEAD AND TENTACLES OF A GREAT CALAMARY (*Architeuthis princeps*) TAKEN IN LOGIE BAY, NEWFOUNDLAND, NOV. 1873.

24 feet in length; the eight shorter arms each 6 feet long, the largest of the latter being 10 inches in circumference at the base; total length of this calamary 32 feet. Professor

Verrill considers that this and the Conception Bay squid are both referable to one species—Steenstrup's *Architeuthis dux*.

Excellent woodcuts from photographs of these two specimens were given in the *Field* of December 13th, 1873, and January 31st, 1874, respectively, and I am indebted to the proprietors of that journal for their kind and courteous permission to copy them in reduced size for the illustration of this little work.

For the preservation of both of the above described specimens we have to thank Mr. Harvey, and he produces additional evidence of other gigantic cuttles having been previously seen on the coast of Newfoundland. He mentions two especially, which, as stated by the Rev. Mr. Gabriel, were cast ashore in the winter of 1870-71, near Lamaline on the south coast of the island, which measured respectively 40 feet and 47 feet in length; and he also tells of another stranded two years later, the total length of which was 80 feet.

In the *American Journal of Science and Arts*, of March 1875, Professor Verrill gives particulars and authenticated testimony of several other examples of great calamaries, varying in total length from 30 feet to 52 feet, which have been taken in the neighbourhood of Newfoundland since the year 1870. One of these was found floating, apparently dead, near the Grand Banks in October 1871, by Captain Campbell, of the schooner *B. D. Hoskins*, of Gloucester, Mass. It was taken on board, and part of it used for bait. The body is stated to have been 15 feet long, and the pedal or shorter arms between 9 feet and 10 feet. The beak was forwarded to the Smithsonian Institution.

Another instance given by Professor Verrill is of a great squid found alive in shallow water in Coomb's Cove,

Fortune Bay, in the year 1872. Its measurements, taken by the Hon. T. R. Bennett, of English Harbour, Newfoundland, were, length of body 10 feet ; length of tentacle 42 feet ; length of one of the ordinary arms 6 feet : the cups on the tentacles were serrated. Professor Verrill also mentions a pair of jaws and two suckers in the Smithsonian Institution, as having been received from the Rev. A. Munn, with a statement that they were taken from a calamary which went ashore in Bonavista Bay, and which measured 32 feet in total length.

On the 22nd of September, 1877, another gigantic squid was stranded at Catalina, on the north shore of Trinity Bay, Newfoundland, during a heavy equinoctial gale. It was alive when first seen, but died soon after the ebbing of the tide, and was left high and dry upon the beach. Two fishermen took possession of it, and the whole settlement gathered to gaze in astonishment at the monster. Formerly it would have been converted into manure, or cut up as food for dogs, but, thanks to the diffusion of intelligence, there were some persons in Catalina who knew the importance of preserving such a rarity, and who advised the fishermen to take it to St. John's. After being exhibited there for two days, it was packed in half-a-ton of ice in readiness for transmission to Professor Verrill, in the hope that it would be placed in the Peabody or Smithsonian Museum ; but at the last moment its owners violated their agreement, and sold it to a higher bidder. The final purchase was made for the New York Aquarium, where it arrived on the 7th of October, immersed in methylated spirit in a large glass tank. Its measurements were as follows :—length of body 10 feet ; length of tentacles 30 feet ; length of shorter arm 11 feet ; circumference of body 7 feet ; breadth of caudal fin 2 feet 9 inches ; diameter of largest

tentacular sucker 1 inch ; number of suckers on each of the shorter arms 250.

The appearance of so many of these great squids on the shores of Newfoundland during the term of seven years, and after so long a period of popular uncertainty as to their very existence had previously elapsed, might lead one to suppose that the waters of the North Atlantic Ocean which wash the north-eastern coasts of the American Continent were, at any rate, temporarily, their principal habitat, especially as a smaller member of their family, *Ommastrephes sagittatus*, is there found in such extraordinary numbers that it furnishes the greater part of the bait used in the Newfoundland cod fisheries. But that they are by no means confined to this locality is proved by recent instances, as well as by those already cited.

Dr. F. Hilgendorf records * observations of a huge squid exhibited for money at Yedo, Japan, in 1873, and of another of similar size, which he saw exposed for sale in the Yedo fish market.

When the French expedition was sent to the Island of St. Paul, in 1874, for the purpose of observing the transit of Venus, which occurred on the 9th of December in that year, it was fortunately accompanied by an able zoologist, M. Ch. Velain. He reports † that on the 2nd of November a tidal wave cast upon the north shore of the island a great calamary which measured in total length nearly 23 feet, namely : length of body 7 feet ; length of tentacles 16 feet. There are several points of interest connected with its generic characters, and M. Velain's grounds for regarding it as being of a previously unknown species, but they

* 'Sitzungsberichte der Gesellschaft naturforschenden Freunde zu Berlin,' pp. 65-67, quoted by Professor Owen, *op. cit.*

† 'Comptes Rendus,' t. 80, 1875, p. 998.

are too technical for discussion here. This specimen was photographed as it lay upon the beach by M. Cazin, the photographer to the expedition.

The following account of the still more recent capture of a large squid off the west coast of Ireland was given in the *Zoologist* of June 1875, by Sergeant Thomas O'Connor, of the Royal Irish Constabulary :—

“On the 26th of April, 1875, a very large calamary was met with on the north-west of Boffin Island, Connemara. The crew of a ‘curragh’ (a boat made like the ‘coracle,’ with wooden ribs covered with tarred canvas) observed to seaward a large floating mass, surrounded by gulls. They pulled out to it, believing it to be wreck, but to their astonishment found it was an enormous cuttle-fish, lying perfectly still, as if basking on the surface of the water. Paddling up with caution, they lopped off one of its arms. The animal immediately set out to sea, rushing through the water at a tremendous pace. The men gave chase, and, after a hard pull in their frail canvas craft, came up with it, five miles out in the open Atlantic, and severed another of its arms and the head. These portions are now in the Dublin Museum. The shorter arms measure, each, eight feet in length, and fifteen inches round the base : the tentacular arms are said to have been thirty feet long. The body sank.”

Finally, there is in our own national collection, preserved in spirit in a tall glass jar, a single arm of a huge cephalopod, which, by the kindness and courtesy of the officers of the department, I was permitted to examine and measure when I first described it, in May, 1873. It is 9 feet long, and 12 inches in circumference at the base, tapering gradually to a fine point. It has about 300 suckers, pedunculated, or set on tubular footstalks, placed alternately in two rows, and having serrated, horny rings, but no hooks ; the diameter of the largest of these rings is half an inch ; the smallest is not larger than a pin's head. This is one of the eight

shorter, or pedal, and not one of the long, or tentacular, arms of the calamary to which it belonged. The relative length of the arms to that of the body and tentacles varies in different genera of the *Tenuthidæ*, and it is not impossible that this may be the case even in individuals of the same species. But, judging from the proportions of known examples, I estimate the length of the tentacles at 36 feet, and that of the body at from 10 to 11 feet: total length 47 feet. The beak would probably have been about 5 inches long from hinge socket to point, and the diameter of the largest suckers of the tentacles about 1 inch. So much for De Montfort's "suckers as big as saucepan-lids." From a well defined fold of skin which spreads out from each margin of that surface of the arm over which the suckers are situated, Professor Owen has given to this calamary the generic name of *Plectoteuthis*, with the specific title of *grandis* to indicate its enormous size. No history relating to this interesting specimen has been preserved. No one knows its origin, nor when it was received, but Dr. Gray told me that he believed it came from the east coast of South America. It has, however, long formed part of the stores of the British Museum, and, although previously open to public view, was more recently for many years kept in the basement chambers of the old building in Bloomsbury, which were irreverently called by the initiated "the spirit vaults and bottle department," because fishes, mollusca, &c., preserved in spirits were there deposited. I hope the public will have greater facility of access to it in the new Museum.

Here, then, in our midst, and to be seen by all who ask permission to inspect it, is, and has long been, a limb of a great cephalopod capable of upsetting a boat, or of hauling a man out of her, or of clutching one engaged in scraping

a ship's side, and dragging him under water, as described by the old master-mariner Magnus Dens. The tough, supple tentacles, shot forth with lightning rapidity, would be long enough to reach him at a distance of a dozen yards, and strong enough to drag him within the grasp of the eight shorter arms, a helpless victim to the mandibles of a beak sufficiently powerful to tear him in pieces and crush some of his smaller bones. For, once within that dreadful embrace, his escape, unaided, would be impossible. The clinging power of this *Plectoteuthis* is so enormously augmented by the additional surface given by the expanded folds to the under side of the arms, that I doubt if even one of the smaller whales, such as the "White Whale," or the "Pilot Whale," could extricate itself from their combined hold, if those eight supple, clammy, adhesive arms, each 9 feet long, and 5 inches in diameter at the base on the flat under surface, and armed with a battery of 2400 suckers, were once fairly lapped around it.

Ought it to surprise us, then, that an uneducated seafaring population, such as the fishermen of Fridrichstad, mentioned by Pontoppidan, absolutely ignorant of the habits and affinities, and even unacquainted with the real external form of such a creature, should exaggerate its dimensions and invest it with mystery? All that they knew of it was that whilst their friends and neighbours, whom we will call Eric Paulsen, Hans Ohlsen, and Olaf Bruhn were out fishing one calm day, a shapeless "something" rose just above the surface of the tranquil sea not far from their boat. They could see that there was much more of its bulk under water, but how far it extended they could not ascertain. Mistrusting its appearance, and with foreboding of danger, they were about to get up their anchor, when, suddenly, from thirty feet away, a rope was

shot on board which fastened itself on Hans; he was dragged from amongst them towards the strange floating mass; there was a commotion; from the foaming sea upreared themselves, as it seemed to Eric and Olaf, several writhing serpents, which twined themselves around Hans; and as they gazed, helpless, in horror and bewilderment, the monster sank, and with a mighty swirl the waters closed for ever over their unfortunate companion. The men would naturally hasten home, and describe the dreadful incident—their imagination excited by its mysterious nature; the tale would spread through the district, losing nothing by repetition, and within a week the fabled Kraken would be the result.

The existence, in almost every sea, of calamaries capable of playing their part in such a scene has been fully proved, and this vexed question of marine zoology set at rest for ever. The “much greater light on this subject,” which, as Pontoppidan sagaciously foresaw, was “reserved for posterity,” has been thrown upon it by the discoveries of the last few years; and the “further experience which is always the best instructor,” and which he correctly anticipated would be possessed by the “future writers,” to whom he bequeathed the completion of his “sketch,” has been obtained. Viewed by their aid, and seen in the clearer atmosphere of our present knowledge, the great sea-monster which loomed so indefinitely vast in the mist of ignorance and superstition, stands revealed in its true form and proportions—its magnitude reduced, its outline distinct, and its mystery gone—and we recognise in the supposed Kraken, as the Norwegian bishop rightly conjectured that we should, an animal “of the *Polypus* (or cuttle) kind, and amongst the largest inhabitants of the ocean.”

THE GREAT SEA SERPENT.

THE belief in the existence of sea-serpents of formidable dimensions is of great antiquity. Aristotle, writing about B.C. 340, says* :—"The serpents of Libya are of an enormous size. Navigators along that coast report having seen a great quantity of bones of oxen, which they believe, without doubt, to have been devoured by the serpents. These serpents pursued them when they left the shore, and upset one of their triremes"—a vessel of a large class, having three banks of oars.

Pliny tells us† that a squadron sent by Alexander the Great on a voyage of discovery, under the command of Onesicritus and Nearchus, encountered, in the neighbourhood of some islands in the Persian Gulf, sea-serpents thirty feet long, which filled the fleet with terror.

Valerius Maximus,‡ quoting Livy, describes the alarm into which, during the Punic wars, the Romans, under Attilius Regulus (who was afterwards so cruelly put to death by the Carthaginians), were thrown by an aquatic, though not marine, serpent which had its lair on the banks of the Bagradas, near Ithaca. It is said to have swallowed many of the soldiers, after crushing them in its folds, and to have kept the army from crossing the river, till at length, being invulnerable by ordinary weapons, it was destroyed by heavy stones hurled by balistas, catapults, and other military engines used in those days for casting heavy missiles, and battering the walls of

* 'History of Animals,' book 8, chap. 28.

† 'Naturalis Historiæ,' Lib. vi., cap. 23.

‡ 'De Factis, Dictisque Memorabilibus,' Lib. i., cap. 8, 1st century.

fortified towns. According to the historian, the annoyance caused by it to the army did not cease with its death, for the water was polluted with its gore, and the air with the noxious fumes from its corrupted carcase, to such a degree that the Romans were obliged to remove their camp. They, however secured the animal's skin and skull, which were preserved in a temple at Rome till the time of the Numantine war. This combat has been described, to the same effect, by Florus (lib. ii.), Seneca (litt. 82), Silvius Italicus (l. vi.), Aulus Gellius (lib. vi., cap. 3), Orosius, Zonaras, &c., and is referred to by Pliny (lib. viii., cap. 14) as an incident known to every one. Diodorus Siculus also tells of a great serpent, sixty feet long, which lived chiefly in the water, but landed at frequent intervals to devour the cattle in its neighbourhood. A party was collected to capture it ; but their first attempt failed, and the monster killed twenty of them. It was afterwards taken in a strong net, carried alive to Alexandria, and presented to King Ptolemy II., the founder of the Alexandrian Library and Museum, who was a great collector of zoological and other curiosities. This snake was probably one of the great boas.

The "*Serpens marinus*" is figured and referred to by many other writers, but as they evidently allude to the Conger and the Murena, we will pass over their descriptions.

The sea-serpents mentioned by Aristotle, Pliny, and Diodorus were, doubtless, real sea-snakes, true marine ophidians, which are more common in tropical seas than is generally supposed. They are found most abundantly in the Indian Ocean ; but they have an extensive geographical range, and between forty and fifty species of them are known. They are all highly poisonous, and some are so ferocious that they more frequently attack than avoid man.

The greatest length to which they are authentically known to attain is about twelve feet. The form and structure of these *hydrophides* are modified from those of land serpents, to suit their aquatic habits. The tail is compressed vertically, flattened from the sides, so as to form a fin like the tail of an eel, by which they propel themselves ; but instead of tapering to a point, it is rounded off at the end, like the blade of a paper-knife, or the scabbard of a cavalry sabre. Like other lung-breathing animals which live in water, they are also provided with a respiratory apparatus adapted to their circumstances and requirements—their nostrils, which are very small, being furnished, like those of the seal, manatee, &c., with a valve opening at will to admit air, and closing perfectly to exclude water.

Leaving these water-snakes of the tropics, we come, next in order of date, upon some very remarkable evidence that there was current amongst a community where we should little expect to find it, the idea of a marine monster corresponding in many respects with some of the descriptions given several centuries later of the sea-serpent. In an interesting article on the Catacombs of Rome in the *Illustrated London News* of February 3rd, 1872, allusion is made by the author to the collection of sarcophagi or coffins of the early Christians, removed from the Catacombs, and preserved in the museum of the Lateran Palace, where they were arranged by the late Padre Marchi for Pope Pius IX. There are more than twenty of these, sculptured with various designs—the Father and the Son, Adam and Eve and the Serpent, the Sacrifice of Abraham, Moses striking the Rock, Daniel and the Lions, and other Scripture themes. Amongst them also is Jonah and the “whale.” A facsimile of this sculpture (Fig. 11) is one of the illustrations of the article referred to. It will be seen that Jonah

is being swallowed feet foremost, or possibly being ejected head first, by an enormous sea monster, having the chest and fore-legs of a horse, a long arching neck, with a mane at its base, near the shoulders, a head like nothing in nature, but having hair upon and beneath the cheeks, the hinder portion of the body being that of a serpent of prodigious length, undulating in several vertical curves. This sculpture appears to have been cut between the beginning and the middle of the third century, about

FIG. II.—JONAH AND THE SEA MONSTER.

From the Catacombs of Rome.

A.D. 230, but it probably represents a tradition of far greater antiquity.

We will now consider the accounts given by Scandinavian historians, of the sea-serpent having been seen in northern waters. Here, I suppose, I ought to indulge in the usual flippant sneer at Bishop Pontoppidan. I know that in abstaining from doing so I am sadly out of the fashion; but I venture to think that the dead lion has been kicked at too often already, and undeservedly. Whether there be, or be not, a huge marine animal, not necessarily an ophidian, answering to some of the descriptions of the sea-serpent—so called—Pontoppidan did not invent the stories told of its appearance. Long before he was born the monster had been described and figured; and for centuries previously the Norwegians, Swedes, Danes, and Fins had believed in its

existence as implicitly as in the tenets of their religious creed. Olaus Magnus, Archbishop of Upsala, in Sweden, wrote of it in A.D. 1555 as follows:*

“They who in works of navigation on the coasts of Norway employ themselves in fishing or merchandize do all agree in this strange story, that there is a serpent there which is of a vast magnitude, namely 200 foot long, and moreover, 20 foot thick; and is wont to live in rocks and caves toward the sea-coast about Berge: which will go alone from his holes on a clear night in summer, and devour calves, lambs, and hogs, or else he goes into the sea to feed on polypus (octopus), locusts (lobsters), and all sorts of sea-crabs. He hath commonly hair hanging from his neck a cubit long, and sharp scales, and is black, and he hath flaming, shining eyes. This snake disquiets the shippers; and he puts up his head on high like a pillar, and catcheth away men, and he devours them; and this happeneth not but it signifies some wonderful change of the kingdom near at hand; namely, that the princes shall die, or be banished; or some tumultuous wars shall presently follow. There is also another serpent of an incredible magnitude in an island called Moos in the diocess of Hammer; which, as a comet portends a change in all the world, so that portends a change in the kingdom of Norway, as it was seen anno 1522; that lifts himself high above the waters, and rolls himself round like a sphere.† This serpent was thought to be fifty cubits long by conjecture, by sight afar off: there followed this the banishment of King Christiernus, and a great persecution of the Bishops; and it shewed also the destruction of the country.”

The Gothic Archbishop, amongst other signs and omens, also attributes this power of divination to the small red ants which are sometimes so troublesome in houses, and declares that they also portended the downfall, A.D. 1523,

* ‘*Historia de Gentibus Septentrionalibus*,’ Lib. xxi. cap. 43.

† “Coils itself in spherical convolutions” is a better translation of the original Latin.

of the abominably cruel Danish king, Christian II., above mentioned. His curious work is full of wild improbabilities and odd superstitions, most of which he states with a calm air of unquestioning assent; but as he wrote in the time of our Henry VIII., long before the belief in witches and warlocks, fairies and banshees, had died out in our own country, we can hardly throw stones at him on that score. It is a most amusing and interesting history, and gives a wonderful insight of the habits and customs of the northern nations in his day.

Amongst his illustrations of the sea monsters he describes are the two of which I give facsimiles on the next page. In Fig. 12 a sea-serpent is seen writhing in many coils upon the surface of the water, and having in its mouth a sailor, whom it has seized from the deck of a ship. The poor fellow is trying to grasp the ratlins of the shrouds, but is being dragged from his hold and lifted over the bulwarks by the monster. His companions, in terror, are endeavouring to escape in various directions. One is climbing aloft by the stay, in the hope of getting out of reach in that way, whilst two others are hurrying aft to obtain the shelter of a little castle or cabin projecting over the stern. I am strongly of the opinion that this is but the fallacious representation of an actual occurrence. Read by the light of recent knowledge, these old pictures convey to a practised eye a meaning as clear as that of hieroglyphics to an Egyptologist, and my translation of this is the following: The crew of a ship have witnessed the dreadful sight of a serpent-like form issuing from the sea, rising over the bulwarks of their vessel, seizing one of their messmates from amongst them, and dragging him overboard and under water. Awe-stricken by the mysterious disappearance of their comrade, and too frightened and anxious for

FIG. 12.—A SEA SERPENT SEIZING A MAN ON BOARD SHIP.

After OLAUS MAGNUS.

FIG. 13.—A GIGANTIC LOBSTER DRAGGING A MAN FROM A SHIP.

After OLAUS MAGNUS.

their own safety to be able, during the short space of time occupied by an affair, which all happened in a few seconds, to observe accurately their terrible assailant, they naturally conjecture that it must have been a snake. It was probably a gigantic calamary, such as we now know exist, and the dead carcasses of which have been found in the locality where the event depicted is supposed to have taken place. The presumed body of the serpent was one of the arms of the squid, and the two rows of suckers thereto belonging are indicated in the illustration by the medial line traversing its whole length (intended to represent a dorsal fin) and the double row of transverse septa, one on each side of it.

In Fig. 13 an enormous lobster is in the act of similarly dragging overboard from a vessel a man whom it has seized by the arm with one of its great claws. From the crude image of a lobster having eight minor claws and two larger ones, to that of a cuttle having eight minor arms and two longer ones, the transition is not great; and I believe that this also is a pictorial misrepresentation of a casualty by the attack of a calamary similar to that above described, possibly another view of the same incident. The idea is that of a sea animal capable of suddenly seizing and grasping a man, and we must remember that we have evidence, in the writings of Pontoppidan and others, that, even two centuries later than Olaus Magnus, the Norsemen's knowledge of the cuttles was exceedingly vague and indistinct. Any one who has seen, as I frequently have at the Brighton Aquarium, and as they doubtless had whilst lobster-catching, the threatening and ferocious manner in which a lobster will brandish, and, if I may use the term, "gnash" its claws at an intruding hand, even if held above the surface of the water, can well imagine a party of fishermen discussing such a tragic occurrence as the foregoing,

and differing in opinion as to the identity of the creature which had caused the catastrophe, some maintaining that it must have been a sea-serpent, and others shaking their heads and asserting that nothing but a colossal lobster could have done it.

Pontoppidan, in writing his history of Norway, of course had before him the statements of Olaus Magnus ; but, though their author was an archbishop, he did not accept them with the childlike simplicity generally ascribed to him. Quoting, and, singularly enough, misquoting, the Swedish prelate as referring to a sea-serpent, when he is describing, incorrectly, one of the *Acalephæ*, or sea-nettles, Pontoppidan says :—

“I have never heard of this sort, and should hardly believe the good Olaus if he did not say that he affirmed this from his own experience. The disproportion makes me think there must be some error of the press . . . He mixes truth and fable together according to the relations of others ; but this was excusable in that dark age when that author wrote. Notwithstanding all this, we, in the present more enlightened age, are much obliged to him for his industry and judicious observations.”

Of the sea-serpent Pontoppidan writes :—

“ I have questioned its existence myself, till that suspicion was removed by full and sufficient evidence from creditable and experienced fishermen and sailors in Norway, of which there are hundreds who can testify that they have annually seen them. All these persons agree very well in the general description ; and others who acknowledge that they only know it by report or by what their neighbours have told them, still relate the same particulars. In all my inquiry about these affairs I have hardly spoke with any intelligent person born in the manor of Nordland who was not able to give a pertinent answer, and strong assurances of the existence of this fish ; and some of our north traders that come here every year with their merchandize think it a very strange

question when they are seriously asked whether there be any such creature: they think it as ridiculous as if the question was put to them whether there be such fish as eel or cod."

The worthy Bishop of Bergen did his best to sift truth from fable, but he could not always succeed in separating them. Many stupendous falsehoods were brought to him, and some of them passed through his sieve in spite of his care. Of these are the accounts of the "spawning times" of the sea-serpent, its dislike of certain scents, &c. We must pass over all this, and confine ourselves to the evidence offered by him of its having been seen.

The first witness he adduces is Captain Lawrence de Ferry, of the Norwegian navy, and first pilot in Bergen, who, premising that he had doubted a great while whether there were any such creature till he had ocular demonstration of it, made the following statement, addressed formally and officially to the procurator of Bergen:—

"Mr. JOHN REUTZ—

"The latter end of August, in the year 1746, as I was on a voyage, on my return from Trundhiem, on a very calm and hot day, having a mind to put in at Molde, it happened that when we were arrived with my vessel within six English miles of the aforesaid Molde, being at a place called Jule-Næss, as I was reading in a book, I heard a kind of a murmuring voice from amongst the men at the oars, who were eight in number, and observed that the man at the helm kept off from the land. Upon this I inquired what was the matter, and was informed that there was a sea-snake before us. I then ordered the man at the helm to keep to the land again, and to come up with this creature of which I had heard so many stories. Though the fellows were under some apprehension, they were obliged to obey my orders. In the meantime the sea-snake passed by us, and we were obliged to tack the vessel about in order to get nearer to it. As the snake swam faster than we could row, I took my

gun, that was ready charged, and fired at it ; on this he immediately plunged under the water. We rowed to the place where it sunk down (which in the calm might be easily observed) and lay upon our oars, thinking it would come up again to the surface ; however it did not. Where the snake plunged down, the water appeared thick and red ; perhaps some of the shot might wound it, the distance being very little. The head of this snake, which it held more than two feet above the surface of the water, resembled that of a horse. It was of a greyish colour, and the mouth was quite black, and very large. It had black eyes, and a long white mane, that hung down from the neck to the surface of the water. Besides the head and neck, we saw seven or eight folds, or coils, of this snake, which were very thick, and as far as we could guess there was about a fathom distance between each fold. I related this affair in a certain company, where there was a person of distinction present who desired that I would communicate to him an authentic detail of all that happened ; and for this reason two of my sailors, who were present at the same time and place where I saw this monster, namely, Nicholas Pedersen Kopper, and Nicholas Nicholsen Anglewigen, shall appear in court, to declare on oath the truth of every particular herein set forth ; and I desire the favour of an attested copy of the said descriptions.

“ I remain, Sir, your obliged servant,

“ L. DE FERRY.

“ Bergen, 21st February, 1751.

“ After this the before-named witnesses gave their corporal oaths, and, with their finger held up according to law, witnessed and confirmed the aforesaid letter or declaration, and every particular set forth therein to be strictly true. A copy of the said attestation was made out for the said Procurator Reutz, and granted by the Recorder. That this was transacted in our court of justice we confirm with our hand and seals. *Actum Bergis die et loco, ut supra.*

“ A. C. DASS (*Chief Advocate*).

“ H. C. GARTNER (*Recorder*).”

The figure of the sea-serpent (Fig. 14) given by Pontoppidan was drawn, he tells us, under the inspection of a clergyman, Mr. Hans Strom, from descriptions given of it by two of his neighbours, Messrs. Reutz and Teuchsen, of Herroe; and was declared to agree in every particular with that seen by Captain de Ferry, and another subsequently observed by Governor Benstrup. The supposed coils of the serpent's body present exactly the appearance of eight porpoises following each other in line. This is a well-known habit of some of the smaller cetacea. They are often met with at sea thus proceeding in close single file, part only of their rotund forms being visible as they raise their backs above the surface of the water to inhale air through their "blow-holes." Under these circumstances they have been described by naturalists and seamen as resembling a long string of casks or buoys, often extending for sixty, eighty, or a hundred yards. This is just such a spectacle as that described by Olaus Magnus—his "long line of spherical convolutions," and also as one reported to Pontoppidan as being descriptive of the sea-serpent:—

FIG. 14.—PONTOPPIDAN'S
"SEA SERPENT."

"‘I have been informed,’ he says, ‘by some of our sea-faring

men that a cable* would not be long enough to measure the length of some of them when they are observed on the surface of the water in an even line. They say those round lumps or folds sometimes lie one after another as far as a man can see. I confess, if this be true, that we must suppose most probably that it is not one snake, but two or more of these creatures lying in a line that exhibit this phenomenon.' In a foot-note he adds: 'If any one enquires how many folds may be counted on a sea-snake, the answer is that the number is not always the same, but depends upon the various sizes of them: five and twenty is the greatest number that I find well attested.' Adam Olearius, in his Gottorf Museum, writes of it thus: 'A person of distinction from Sweden related here at Gottorf that he had heard the burgomaster of Malmoe, a very worthy man, say that as he was once standing on the top of a very high hill, towards the North Sea, he saw in the water, which was very calm, a snake, which appeared at that distance to be as thick as a pipe of wine, and had twenty-five folds. Those kind of snakes only appear at certain times, and in calm weather.'"

I believe that in every case so far cited from Pontoppidan, as well as that given by Olaus Magnus, the supposed coils or protuberances of the serpent's body were only so many porpoises swimming in line in accordance with their habit before mentioned. If an upraised head, like that of a horse, was seen preceding them, it was either unconnected with them, or it certainly was not that of a snake; for no serpent could throw its body into those vertical undulations. The form of the vertebræ in the ophidians renders such a movement impossible. All their flexions are horizontal; the curving of their body is from side to side, not up and down.

The sea-monster seen by Egede was of an entirely different kind; and his account of it—let sceptics deride it

* Six hundred feet.

as they may—is worthy of attention and careful consideration. The Rev. Hans Egede, known as “The Apostle of Greenland,” was superintendent of the Christian missions to that country. He was a truthful, pious, and single-minded man, possessing considerable powers of observation, and a genuine love of natural history. He wrote two books on the products, people, and natural history of Greenland,* and his statements therein are modest, accurate, and free from exaggeration. His illustrations are little, if at all, superior in style of art to the two Japanese wood-cuts shown on page 29, but they bear the same unmistakable signs of fidelity which characterise those of the Japanese.

In his ‘Journal of the Missions to Greenland’ this author tell us that—

“On the 6th of July, 1734, there appeared a very large and frightful sea monster, which raised itself so high out of the water that its head reached above our main-top. It had a long, sharp snout, and spouted water like a whale; and very broad flappers. The body seemed to be covered with scales, and the skin was uneven and wrinkled, and the lower part was formed like a snake. After some time the creature plunged backwards into the water, and then turned its tail up above the surface, a whole ship-length from the head. The following evening we had very bad weather.”

The high character of the narrator would lead us to accept his statement that he had seen something previously unknown to him (he does not say it was a sea-serpent) even if we could not explain or understand what it was that he saw. Fortunately, however, the sketch made by Mr. Bing, one of his brother missionaries, has enabled us to do this. We must remember that in his endeavour to

* ‘Des alten Grönlands neue perlustration,’ 8vo., Frankfurt, 1730, and ‘Det Gamle Grönlands nye perlustratione eller Naturel Historie.’ 4to., Copenhagen, 1741.

FIG. 15.—THE ANIMAL DRAWN BY MR. BING AS HAVING BEEN SEEN BY HANS EGEDE.

portray the incident he was dealing with an animal with the nature of which he was unacquainted, and which was only partially, and for a very short time, within his view. He therefore delineated rather the impression left on his mind than the thing itself. But although he invested it with a character that did not belong to it, his drawing is so far correct that we are able to recognise at a glance the distorted portrait of an old acquaintance, and to say unhesi-

FIG. 16.—THE ANIMAL WHICH EGEDE PROBABLY SAW.

tatingly that Egede's sea-monster was one of the great calamaries which have since been occasionally met with, but which have only been believed in and recognised within the last few years. That which Mr. Egede believed to be the creature's head was the tail part of the cuttle, which goes in advance as the animal swims, and the two side appendages represent very efficiently the two lobes of the caudal fin. In propelling itself to the surface the squid

raised this portion of its body out of the water to a considerable height, an occurrence which I have often witnessed, and which I have elsewhere described (see pp. 23 and 27). The supposed tail, which was turned up at some distance from the other visible portion of the body, after the latter had sunk back into the sea, was one of the shorter arms of the cuttle, and the suckers on its under side are clearly and conspicuously marked. Egede was, of course, in error in making the "spout" of water to issue from the mouth of his monster. The out-pouring jet, which he, no doubt, saw, came from the locomotor tube, and the puff of spray which would accompany it as the orifice of the tube rose to the surface of the water is sketched with remarkable truthfulness. In quoting Egede, Pontoppidan gives a copy (so-called) of this engraving, but his artist embellished it so much as to deprive it of its original force and character, and of the honestly drawn points which furnish proofs of its identity.

Pontoppidan records other supposed appearances of the sea-serpent, but from the date of his history I know of no other account of such an occurrence until that of an animal "apparently belonging to this class," which was stranded on the Island of Stronsa, one of the Orkneys, in the year 1808 :—

"According to the narrative, it was first seen entire, and measured by respectable individuals. It measured fifty-six feet in length, and twelve in circumference. The head was small, not being a foot long from the snout to the first vertebra; the neck was slender, extending to the length of fifteen feet. All the witnesses agree in assigning it blow-holes, though they differ as to the precise situation. On the shoulders something like a bristly mane commenced which extended to near the extremity of the tail. It had three pairs of fins or paws connected with the body; the anterior were the largest, measuring more than four feet in length, and their extremities were something like toes partially webbed.

The skin was smooth and of a greyish colour ; the eye was of the size of a seal's. When the decaying carcass was broken up by the waves, portions of it were secured (such as the skull, the upper bones of the swimming paws, &c.) by Mr. Laing, a neighbouring proprietor, and some of the vertebræ were preserved and deposited in the Royal University Museum, Edinburgh, and in the Museum of the Royal College of Surgeons, London. An able paper," says Dr. Robert Hamilton, in his account of it,* "on these latter fragments and on the wreck of the animal was read by the late Dr. Barclay to the Wernerian Society, and will be found in Vol. I. of its Transactions, to which we refer. We have supplied a wood-cut of the sketch" (of which I give a *facsimile* here) "which was taken at the time, and which, from the many

FIG. 17.—THE "SEA SERPENT" OF THE WERNERIAN SOCIETY. (*Facsimile.*)

affidavits proffered by respectable individuals, as well as from other circumstances narrated, leaves no manner of doubt as to the existence of some such animal."

Well! one would think so. It looks convincing, and there is a savour of philosophy about it that might lull the suspicions of a doubting zoologist. What more could be required? We have accurate measurements and a sketch taken of the animal as it lay upon the shore, minute particulars of its outward form, characteristic portions of its skeleton preserved in well-known museums, and any amount of affidavits forthcoming from most respectable individuals if confirmation be required. And yet,

"'Tis true, 'tis pity;
And pity 'tis 'tis true,"

the whole fabric of circumstances crumbled at the touch

* Jardine's Naturalists' Library: 'Marine Amphibia,' p. 314.

of science. When the two vertebræ in the Museum of the Royal College of Surgeons were examined by Sir Everard Home he pronounced them to be those of a great shark of the genus *Selache*, and as being undistinguishable from those of the species called the "basking shark," of which individuals from thirty to thirty-five feet in length have been from time to time captured or stranded on our coasts. Professor Owen has confirmed this. Any one who feels inclined to dispute the identification by this distinguished comparative anatomist of a bone which he has seen and handled can examine these vertebræ for himself. If they had not been preserved, this incident would have been cited for all time as among the most satisfactorily authenticated instances on record of the appearance of the sea-serpent. As it is, it furnishes a valuable warning of the necessity for the most careful scrutiny of the evidence of well-meaning persons to whom no intentional deception or exaggeration can be imputed.

In 1809, Mr. Maclean, the minister of Eigg, in the Western Isles of Scotland, informed Dr. Neill, the secretary of the Wernerian Society, that he had seen, off the Isle of Canna, a great animal which chased his boat as he hurried ashore to escape from it; and that it was also seen by the crews of thirteen fishing-boats, who were so terrified by it that they fled from it to the nearest creek for safety. His description of it is exceedingly vague, but is strongly indicative of a great calamary.

In 1817 a large marine animal, supposed to be a serpent, was seen at Gloucester Harbour, near Cape Ann, Massachusetts, about thirty miles from Boston. The Linnæan Society of New England investigated the matter, and took much trouble to obtain evidence thereon. The depositions of eleven credible witnesses were certified on oath before

magistrates, one of whom had himself seen the creature, and who confirmed the statements. All agreed that the animal had the appearance of a serpent, but estimated its length, variously, at from fifty to a hundred feet. Its head was in shape like that of a turtle, or snake, but as large as the head of a horse. There was no appearance of a mane. Its mode of progressing was by vertical undulations ; and five of the witnesses described it as having the hunched protuberances mentioned by Captain de Ferry and others. Of this, I can offer no zoological explanation. The testimony given was apparently sincere, but it was received with mistrust ; for, as Mr. Gosse says, "owing to a habit prevalent in the United States of supposing that there is somewhat of wit in gross exaggeration or hoaxing invention, we do naturally look with a lurking suspicion on American statements when they describe unusual or disputed phenomena."

On the 15th of May, 1833, a party of British officers, consisting of Captain Sullivan, Lieutenants Maclachlan and Malcolm of the Rifle Brigade, Lieutenant Lister of the Artillery, and Mr. Ince of the Ordnance, whilst crossing Margaret's Bay in a small yacht, on their way from Halifax to Mahone Bay, "saw, at a distance of a hundred and fifty to two hundred yards, the head and neck of some denizen of the deep, precisely like those of a common snake in the act of swimming, the head so far elevated and thrown forward by the curve of the neck, as to enable them to see the water under and beyond it. The creature rapidly passed, leaving a regular wake, from the commencement of which to the fore part, which was out of water, they judged its length to be about eighty feet." They "set down the head at about six feet in length (considerably larger than that of a horse), and that portion of the neck which they

saw at the same." "There could be no mistake—no delusion," they say; "and we were all perfectly satisfied that we had been favoured with a view of the true and veritable sea-serpent." This account was published in the *Zoologist*, in 1847 (p. 1715), and at that date all the officers above named were still living.

The next incident of the kind in point of date that we find recorded carries us back to the locality of which Pontoppidan wrote, and in which was seen the animal vouched for by Captain de Ferry. In 1847 there appeared in a London daily paper a long account translated from the Norse journals of fresh appearances of the sea-serpent. The statement made was, that it had recently been frequently seen in the neighbourhood of Christiansand and Molde. In the large bight of the sea at Christiansand it had been seen every year, only in the warmest weather, and when the sea was perfectly calm, and the surface of the water unruffled. The evidence of three respectable persons was taken, namely, Nils Roe, a workman at Mr. William Knudtson's, who saw it twice there, John Johnson, merchant, and Lars Johnöen, fisherman at Smolen. The latter said he had frequently seen it, and that one afternoon in the dog-days, as he was sitting in his boat, he saw it twice in the course of two hours, and quite close to him. It came, indeed, to within six feet of him, and, becoming alarmed, he commended his soul to God, and lay down in the boat, only holding his head high enough to enable him to observe the monster. It passed him, disappeared, and returned; but, a breeze springing up, it sank, and he saw it no more. He described it as being about six fathoms long, the body (which was as round as a serpent's) two feet across, the head as long as a ten-gallon cask, the eyes large, round, red, sparkling, and about five inches in

diameter : close behind the head a mane like a fin commenced along the neck, and spread itself out on both sides, right and left, when swimming. The mane, as well as the head, was of the colour of mahogany. The body was quite smooth, its movements occasionally fast and slow. It was serpent-like, and moved up and down. The few undulations which those parts of the body and tail that were out of water made, were scarcely a fathom in length. These undulations were not so high that he could see between them and the water.

In confirmation of this account Mr. Soren Knudtzon, Dr. Hoffmann, surgeon in Molde, Rector Hammer, Mr. Kraft, curate, and several other persons, testified that they had seen in the neighbourhood of Christiansand a sea-serpent of considerable size.

Mr. William Knudtzon, and Mr. Bochlum, a candidate for holy orders, also gave their account of it, much to the same purport ; but some of these remarks are worthy of note for future comment. They say, "its motions were in undulations, and so strong that white foam appeared before it, and at the side, which stretched out several fathoms. It did not appear very high out of the water ; the head was long and small in proportion to the throat : as the latter appeared much greater than the former, probably it was furnished with a mane."

Sheriffe Göttsche testified to a similar effect. "He could not judge of the animal's entire length ; he could not observe its extremity. At the back of the head there was a mane, which was the same colour as the rest of the body."

We must take one more Norwegian account, for it is a very important one. The venerable P. W. Deinbolt,*

* Hitherto erroneously printed "Deinboll."

Archdeacon of Molde, gives the following account of an incident that occurred there on the 28th of July, 1845 :

“J. C. Lund, bookseller and printer ; G. S. Krogh, merchant ; Christian Flang, Lund’s apprentice, and John Elgesens, labourer, were out on Romsdal-fjord, fishing. The sea was, after a warm, sunshiny day, quite calm. About seven o’clock in the afternoon, at a little distance from the shore, near the ballast place and Molde Hooe, they saw a long marine animal, which slowly moved itself forward, as it appeared to them, with the help of two fins, on the fore-part of the body nearest the head, which they judged by the boiling of the water on both sides of it. The visible part of the body appeared to be between forty and fifty feet in length, and moved in undulations, like a snake. The body was round and of a dark colour, and seemed to be several ells in thickness. As they discerned a waving motion in the water behind the animal, they concluded that part of the body was concealed under water. That it was one continuous animal they saw plainly from its movement. When the animal was about one hundred yards from the boat, they noticed tolerably correctly its fore parts, which ended in a sharp snout ; its colossal head raised itself above the water in the form of a semi-circle ; the lower part was not visible. The colour of the head was dark-brown and the skin smooth ; they did not notice the eyes, or any mane or bristles on the throat. When the serpent came about a musket-shot near, Lund fired at it, and was certain the shots hit it in the head. After the shot it dived, but came up immediately. It raised its neck in the air, like a snake preparing to dart on his prey. After he had turned and got his body in a straight line, which he appeared to do with great difficulty, he darted like an arrow against the boat. They reached the shore, and the animal, perceiving it had come into shallow water, dived immediately and disappeared in the deep. Such is the declaration of these four men, and no one has cause to question their veracity, or imagine that they were so seized with fear that they could not observe what took place so near them. There are not many here, or on other parts of the Norwegian coast, who longer doubt the existence of the sea-serpent. The writer of this narrative was a long time sceptical,

as he had not been so fortunate as to see this monster of the deep ; but after the many accounts he has read, and the relations he has received from credible witnesses, he does not dare longer to doubt the existence of the sea-serpent.

“ P. W. DEINBOLT.

“ Molde, 29th Nov., 1845.”

We may at once accept most fully and frankly the statements of all the worthy people mentioned in this series of incidents. There is no room for the shadow of a doubt that they all recounted conscientiously that which they saw. The last quoted occurrence, especially, is most accurately and intelligently described—so clearly, indeed, that it furnishes us with a clue to the identity of the strange visitant.

Here let me say—and I wish it to be distinctly understood—that I do not deny the possibility of the existence of a great sea serpent, or other great creatures at present unknown to science, and that I have no inclination to explain away that which others have seen, because I myself have not witnessed it. “Seeing is believing,” it is said, and it is not agreeable to have to tell a person that, in common parlance, he “must not trust his own eyes.” It seems presumptuous even to hint that one may know better what was seen than the person who saw it. And yet I am obliged to say, reluctantly and courteously, but most firmly and assuredly, that these perfectly credible eye-witnesses did not correctly interpret that which they witnessed. In these cases, it is not the eye which deceives, nor the tongue which is untruthful, but the imagination which is led astray by the association of the thing seen with an erroneous idea. I venture to say this, not with any insolent assumption of superior acumen, but because we now possess a key to the mystery which Archdeacon

Deinbolt and his neighbours had not access to, and which has only within the last few years been placed in our hands. The movements and aspect of their sea monster are those of an animal with which we are now well acquainted, but of the existence of which the narrators of these occasional visitations were unaware; namely, the great calamary, the same which gave rise to the stories of the Kraken, and which has probably been a denizen of the Scandinavian seas and fjords from time immemorial. It must be remembered, as I have elsewhere said, that until the year 1873, notwithstanding the adventure of the *Alecton* in 1861, a cuttle measuring in total length fifty or sixty feet was generally looked upon as equally mythical with the great sea-serpent. Both were popularly scoffed at, and to express belief in either was to incur ridicule. But in the year above mentioned, specimens of even greater dimensions than those quoted were met with on the coasts of Newfoundland, and portions of them were deposited in museums, to silence the incredulous and interest zoologists. When Archdeacon Deinbolt published in 1846 the declaration of Mr. Lund and his companions of the fishing excursion, he and they knew nothing of there being such an animal. They had formed no conception of it, nor had they the instructive privilege, possessed of late years by the public in England, of being able to watch attentively, and at leisure, the habits and movements of these strangely modified mollusks living in great tanks of sea-water in aquaria. If they had been thus acquainted with them, I believe they would have recognised in their supposed snake the elongated body of a giant squid.

When swimming, these squids propel themselves backwards by the out-rush of a stream of water from a tube pointed in a direction contrary to that in which the animal

is proceeding. The tail part, therefore, goes in advance, and the body tapers towards this, almost to a blunt point. At a short distance from the actual extremity two flat fins project from the body, one on each side, as shown in Figs. 16 and 18, so that this end of the squid's body somewhat resembles in shape the government "broad arrow." It is a habit of these squids, the small species of which are met with in some localities in teeming abundance, to swim on the smooth surface of the water in hot and calm weather. The arrow-headed tail is then raised out of water, to a height which in a large individual might be three feet or more; and, as it precedes the rest of the body, moving at the rate of several miles an hour, it of course looks, to a person who has never heard of an animal going tail first at such a speed, like the creature's head. The appearance of this "head" varies in accordance with the lateral fins being seen in profile or in broad expanse. The elongated, tubular-looking body gives the idea of the neck to which the "head" is attached; the eight arms trailing behind (the tentacles are always coiled away and concealed) supply the supposed mane floating on each side; the undulating motion in swimming, as the water is alternately drawn in and expelled, accords with

FIG. 18.—A CALAMARY SWIMMING AT THE SURFACE OF THE SEA.

the description, and the excurrent stream pouring aft from the locomotor tube, causes a long swirl and swell to be left in the animal's wake, which, as I have often seen, may easily be mistaken for an indefinite prolongation of its body. The eyes are very large and prominent, and the general tone of colour varies through every tint of brown, purple, pink, and grey, as the creature is more or less excited, and the pigmentary matter circulates with more or less vigour through the curiously moving cells.

Here we have the "long marine animal" with "two fins on the forepart of the body near the head," the "boiling of the water," the "moving in undulations," the "body round, and of a dark colour," the "waving motion in the water behind the animal, from which the witnesses concluded that part of the body was concealed under water," the "head raised, but the lower part not visible," "the sharp snout," the "smooth skin," and the appearance described by Mr. William Knudtson, and Candidatus Theologiæ Bochlum, of "the head being long and small in proportion to the throat, the latter appearing much greater than the former," which caused them to think "it was *probably* furnished with a mane." Not that they *saw* any mane, but as they had been told of it, they thought they *ought to have seen it*. Less careful and conscientious persons would have persuaded themselves, and declared on oath, that they *did see it*.

I need scarcely point out how utterly irreconcilable is the proverbially smooth, gliding motion of a serpent, with the supposition of its passage through the water causing such frictional disturbance that "white foam appeared before it, and at the side, which stretched out several fathoms," and of "the water boiling around it on both sides of it." The cuttle is the only animal that I know of that

would cause this by the effluent current from its "syphon tube." I have seen a deeply laden ship push in front of her a vast hillock of water, which fell off on each side in foam as it was parted by her bow ; but that was of man's construction. Nature builds on better lines. No swimming creature has such unnecessary friction to overcome. Even the seemingly unwieldy body of a porpoise enters and passes through the water without a splash, and nothing can be more easy and graceful than the feathering action of the flippers of the awkward-looking turtle.

We now come to an incident which, from the character of those who witnessed it, immediately commanded attention, and excited popular curiosity. In the *Times* of the 9th of October, 1848, appeared a paragraph stating that a sea-serpent had been met with by the *Dædalus* frigate, on her homeward voyage from the East Indies. The Admiralty immediately inquired of her commander, Captain M'Quhæ, as to the truth of the report ; and his official reply, as follows, addressed to Admiral Sir W. H. Gage, G.C.H., Devonport, was printed in the *Times* of the 13th of October, 1848.

" H.M.S. *Dædalus*, Hamoaze,
" October 11th, 1848.

" SIR,—In reply to your letter of this date, requiring information as to the truth of the statement published in the *Times* newspaper, of a sea-serpent of extraordinary dimensions having been seen from H.M.S. *Dædalus*, under my command, on her passage from the East Indies, I have the honour to acquaint you, for the information of my Lords Commissioners of the Admiralty, that at 5 o'clock P.M. on the 6th of Aug. last, in lat. $24^{\circ} 44'$ S. and long. $9^{\circ} 22'$ E., the weather dark and cloudy, wind fresh from the N.W. with a long ocean swell from the W., the ship on the port tack, head being N.E. by N., something very unusual was seen by Mr. Sartoris, midshipman, rapidly approaching the ship from before

the beam. The circumstance was immediately reported by him to the officer of the watch, Lieut. Edgar Drummond, with whom and Mr. Wm. Barrett, the Master, I was at the time walking the quarter-deck. The ship's company were at supper. On our attention being called to the object it was discovered to be an enormous serpent, with head and shoulders kept about four feet constantly above the surface of the sea, and, as nearly as we could approximate by comparing it with the length of what our main-topsail yard would show in the water, there was at the very least sixty feet of the animal *à fleur d'eau*, no portion of which was, to our perception, used in propelling it through the water, either by vertical or horizontal undulation. It passed rapidly, but so close under our lee quarter that had it been a man of my acquaintance I should easily have recognised his features with the naked eye; and it did not, either in approaching the ship or after it had passed our wake, deviate in the slightest degree from its course to the S.W., which it held on at the pace of from twelve to fifteen miles per hour, apparently on some determined purpose.

"The diameter of the serpent was about fifteen or sixteen inches behind the head, which was without any doubt that of a snake; and it was never, during the twenty minutes it continued in sight of our glasses, once below the surface of the water; its colour dark brown, and yellowish white about the throat. It had no fins, but something like the mane of a horse, or rather a bunch of seaweed, washed about its back. It was seen by the quarter-master, the boatswain's mate, and the man at the wheel, in addition to myself and the officers above mentioned.

"I am having a drawing of the serpent made from a sketch taken immediately after it was seen, which I hope to have ready for transmission to my Lords Commissioners of the Admiralty by to-morrow's post.—PETER M'QUHÆ, Captain."

The sketches referred to in the captain's letter were made under his supervision, and copies of them, of which he certified his approbation, were published in the *Illustrated London News* on the 28th of October, 1848. I am kindly permitted by the proprietors of that journal to reproduce.

FIG. 19.—THE "SEA SERPENT" PASSING UNDER THE QUARTER OF H.M.S. 'DEDALUS.'

two of them, reduced in size to suit these pages—one showing the relative positions of the “serpent” and the ship when the former was first seen (*Frontispiece*), and the other (Fig. 19) representing the animal afterwards passing under the frigate’s quarter. An enlarged drawing of its head was also given, which I have not thought it necessary to copy.

Lieutenant Drummond, the officer of the watch mentioned in Captain M’Quhæ’s report, published his memorandum of the impression made on his mind by the animal at the time of its appearance. It differs somewhat from the captain’s description, and is the more cautious of the two.

“I beg to send you the following extract from my journal. H.M.S. ‘Dædalus,’ August 6, 1848, lat. 25° S., long. $9^{\circ} 37'$ E., St. Helena 1,015 miles. In the 4 to 6 watch, at about 5 o’clock, we observed a most remarkable fish on our lee-quarter, crossing the stern in a S.W. direction. The appearance of its head, which with the back fin was the only portion of the animal visible, was long, pointed and flattened at the top, perhaps ten feet in length, the upper jaw projecting considerably; the fin was perhaps 20 feet in the rear of the head, and visible occasionally; the captain also asserted that he saw the tail, or another fin, about the same distance behind it; the upper part of the head and shoulders appeared of a dark brown colour, and beneath the under-jaw a brownish-white. It pursued a steady undeviating course, keeping its head horizontal with the surface of the water, and in rather a raised position, disappearing occasionally beneath a wave for a very brief interval, and not apparently for purposes of respiration. It was going at the rate of perhaps from twelve to fourteen miles an hour, and when nearest was perhaps one hundred yards distant; in fact it gave one quite the idea of a large snake or eel. No one in the ship has ever seen anything similar; so it is at least extraordinary. It was visible to the naked eye for five minutes, and with a glass for perhaps fifteen more. The weather was dark and squally at

the time, with some sea running.—EDGAR DRUMMOND, Lieut. H.M.S. 'Dædalus;' Southampton, Oct. 28, 1848."

Statements so interesting and important, of course, elicited much correspondence and controversy. Mr. J. D. Morris Stirling, a director of the Bergen Museum, wrote to the Secretary of the British Admiralty, Captain Hamilton, R.N., saying that while becalmed in a yacht between Bergen and Sogne, in Norway, he had seen, three years previously, a large fish or reptile of cylindrical form (he would not say "sea serpent") ruffling the otherwise smooth surface of the fjord. No head was visible. This appears to have been, like the others from the same locality, a large calamary. Mr. Stirling unaware, doubtless, that Mr. Edward Newman, editor of the *Zoologist*, had previously propounded the same idea, suggested that the supposed serpent might be one of the old marine reptiles, hitherto supposed only to exist in the fossil state. This letter was published in the *Illustrated News* of October 28th, and four days afterwards, November 2nd, a letter signed F. G. S. appeared in the *Times*, in which the same idea was mooted, and the opinion expressed that it might be the *Plesiosaurus*. This brought out that great master in physiology, Professor Owen, who in a long, and, it is needless to say, most able letter to the *Times*, dated the 9th of November, 1848, set forth a series of weighty arguments against belief in the supposed serpent, which I regret that I am unable, from want of space, to quote *in extenso*. The reasoning of the most eminent of living physiologists of course had its influence on those who could best appreciate it; but, as it went against the current of popular opinion, it met with little favour from the public, and has been slurred over much too superciliously by some subsequent writers. He suggested also

that the creature seen might have been a great seal, such as the leonine seal, or the sea-elephant (the head, as shown in the enlarged drawing, was wonderfully seal-like), but it was generally felt that this explanation was unsatisfactory. The nature of his criticism of the official statement will be seen from Captain M'Quhæ's reply, which was promptly given in the *Times* of the 21st of November, 1848, as follows:—

“Professor Owen correctly states that I evidently saw a large creature moving rapidly through the water very different from anything I had before witnessed, neither a whale, a grampus, a great shark, an alligator, nor any of the larger surface-swimming creatures fallen in with in ordinary voyages. I now assert—neither was it a common seal nor a sea-elephant, its great length and its totally differing physiognomy precluding the possibility of its being a ‘*Phoca*’ of any species. The head was flat, and not a ‘capacious vaulted cranium;’ nor had it a stiff, inflexible trunk—a conclusion at which Professor Owen has jumped, most certainly not justified by the simple statement, that no portion of the sixty feet seen by us was used in propelling it through the water either by vertical or horizontal undulation.

“It is also assumed that the ‘calculation of its length was made under a strong preconception of the nature of the beast;’ another conclusion quite contrary to the fact. It was not until after the great length was developed by its nearest approach to the ship, and until after that most important point had been duly considered and debated, as well as such could be in the brief space of time allowed for so doing, that it was pronounced to be a serpent by all who saw it, and who are too well accustomed to judge of lengths and breadths of objects in the sea to mistake a real substance and an actual living body, coolly and dispassionately contemplated, at so short a distance, too, for the ‘eddy caused by the action of the deeper immersed fins and tail of a rapidly moving gigantic seal raising its head above the surface of the water,’ as Professor Owen imagines, in quest of its lost iceberg.

“The creative powers of the human mind may be very limited.

On this occasion they were not called into requisition ; my purpose and desire throughout being to furnish eminent naturalists, such as the learned Professor, with accurate facts, and not with exaggerated representations, nor with what could by any possibility proceed from optical illusion ; and I beg to assure him that old Pontoppidan having clothed his sea-serpent with a mane could not have suggested the idea of ornamenting the creature seen from the ‘Dædalus’ with a similar appendage, for the simple reason that I had never seen his account, or even heard of his sea-serpent, until my arrival in London. Some other solution must therefore be found for the very remarkable coincidence between us in that particular, in order to unravel the mystery.

“Finally, I deny the existence of excitement or the possibility of optical illusion. I adhere to the statements, as to form, colour, and dimensions, contained in my official report to the Admiralty, and I leave them as data whereupon the learned and scientific may exercise the ‘pleasures of imagination’ until some more fortunate opportunity shall occur of making a closer acquaintance with the ‘great unknown’—in the present instance most assuredly no ghost.

“P. M‘QUHÆ, late Captain of H.M.S. ‘Dædalus.’”

Of course neither Professor Owen, nor any one else, doubted the veracity or *bona fides* of the captain and officers of one of Her Majesty’s ships ; and their testimony was the more important because it was that of men accustomed to the sights of the sea. Their practised eyes would, probably, be able to detect the true character of anything met with afloat, even if only partially seen, as intuitively as the Red Indian reads the signs of the forest or the trail ; and therefore they were not likely to be deceived by any of the objects with which sailors are familiar. They would not be deluded by seals, porpoises, trunks of trees, or Brobdingnagian stems of algæ ; but there was one animal with which they were not familiar, of the existence of which they were unaware, and which, as I have said, at that date was

generally believed to be as unreal as the sea-serpent itself—namely, the great calamary, the elongated form of which has certainly in some other instances been mistaken for that of a sea-snake. One of these seen swimming in the manner I have described, and endeavoured to portray (p. 77), would fulfil the description given by Lieutenant Drummond, and would in a great measure account for the appearances reported by Captain M'Quhæ. "*The head long, pointed and flat on the top,*" accords with the pointed extremity and caudal fin of the squid. "*Head kept horizontal with the surface of the water, and in rather a raised position, disappearing occasionally beneath a wave for a very brief interval, and not apparently for purposes of respiration.*" A perfect description of the position and action of a squid swimming. "*No portion of it perceptibly used in propelling it through the water, either by vertical or horizontal undulations.*" The mode of propulsion of a squid—the outpouring stream of water from its locomotor tube—would be unseen and unsuspected, because submerged. Its effect, the swirl in its wake, would suggest a prolongation of the creature's body. The numerous arms trailing astern at the surface of the water would give the appearance of a mane. I think it not impossible that if the officers of the *Dædalus* had been acquainted with this great sea creature the impression on their mind's eye would not have taken the form of a serpent. I offer this, with much diffidence, as a suggestion arising from recent discoveries; and by no means insist on its acceptance; for Captain M'Quhæ, who had a very close view of the animal, distinctly says that "the head was, without any doubt, that of a serpent," and one of his officers subsequently declared that the eye, the mouth, the nostril, the colour, and the form were all most distinctly visible.

In a letter addressed to the Editor of the *Bombay Times*, and dated "Kamptee, January 3rd, 1849," Mr. R. Davidson, Superintending Surgeon, Nagpore Subsidiary Force, describes a great sea animal seen by him whilst on board the ship *Royal Saxon*, on a voyage to India, in 1829. The features of this incident are consistent with his having seen one of the, then unknown, great calamaries.

Dr. Scott, of Exeter, sent to the Editor of the *Zoologist* (p. 2459), an extract from the memorandum-book of Lieutenant Sandford, R.N., written about the year 1820, when he was in command of the merchant ship *Lady Combermere*. In it he mentions his having met with, in lat. 46, long. 3 (Bay of Biscay), an animal unknown to him, an immense body on the surface of the water, spouting, not unlike the blowing of a whale, and the raising up of a triangular extremity, and subsequently of a head and neck erected six feet above the surface of the water. This was evidently a great squid seen under circumstances similar to those described by Hans Egede (p. 67).

In the *Sun Newspaper* of July 9th, 1849, was published the following statement of Captain Herriman, of the ship *Brazilian*:

"On the morning of the 24th February, the ship being becalmed in lat. 26° S., long. 8° E. (about forty miles from the place where Captain M'Quhæ is said to have seen the serpent), the captain perceived something right astern, stretched along the water to a length of twenty-five or thirty feet, and perceptibly moving from the ship, with a steady sinuous motion. The head, which seemed to be lifted several feet above the water, had something resembling a mane running down to the floating portion, and within about six feet of the tail. Of course Captain Herriman, Mr. Long, his chief officer, and the passengers who saw this came to the conclusion that it must be the sea-serpent. As the 'Brazilian' was making no headway, to bring all doubts to an issue,

the captain had a boat lowered, and himself standing in the bow, armed with a harpoon, approached the monster. It was found to be an immense piece of sea-weed, drifting with the current, which sets constantly to the westward in this latitude, and which, with the swell left by the subsidence of a previous gale, gave it the sinuous snake-like motion."

Captain Harrington, of the ship *Castilian*, reported in the *Times* of February 5th, 1858, that :

"On the 12th of December, 1857, N.E. end of St. Helena distant ten miles, he and his officers were startled by the sight of a huge marine animal which reared its head out of the water within twenty yards of the ship. The head was shaped like a long nun-buoy,* and they supposed it to have been seven or eight feet in diameter in the largest part, with a kind of scroll or tuft of loose skin, encircling it about two feet from the top. The water was discoloured for several hundred feet from its head, so much so that on its first appearance my impression was that the ship was in broken water."

Evidently, again, a large calamary raising its caudal extremity and fin above the surface, and discolouring the water by discharging its ink.

This was immediately followed by a letter from Captain Frederick Smith, of the ship *Pekin*, who stated that :

"On December 28th, 1848, being then in lat. 26° S., long. 6° E. (about half-way between the Cape and St. Helena), he saw a very extraordinary-looking thing in the water, of considerable length. With the telescope, he could plainly discern a huge head and neck, covered with a shaggy-looking kind of mane, which it kept lifting at intervals out of water. This was seen by all hands, and was declared to be the great sea-serpent. A boat was lowered ; a line was made fast to the 'snake,' and it was towed alongside and hoisted on board. It was a piece of gigantic sea-weed, twenty

* See illustration, p. 67.

feet long, and completely covered with snaky-looking barnacles. So like a huge living monster did this appear, that had circumstances prevented my sending a boat to it, I should certainly have believed I had seen the great sea-serpent."

In September, 1872, Mr. Frank Buckland published, in *Land and Water*, an account by the late Duke of Marlborough, of a "sea-serpent" having been seen several times within a few days, in Loch Hourne, Scotland. A sketch of it was given which almost exactly accorded with that of Pontoppidan's sea-serpent, namely, seven hunches or protuberances like so many porpoises swimming in line, preceded by a head and neck raised slightly out of water. Many other accounts have been published of the appearance of serpent-like sea monsters, but I have only space for two or three more of the most remarkable of them.

On the 10th of January, 1877, the following affidavit was made before Mr. Raffles, magistrate, at Liverpool :

"We, the undersigned officers and crew of the barque 'Pauline' (of London), of Liverpool, in the county of Lancaster, in the United Kingdom of Great Britain and Ireland, do solemnly and sincerely declare that, on July 8, 1875, in lat. $5^{\circ} 13' S.$, long. $35^{\circ} W.$, we observed three large sperm whales, and one of them was gripped round the body with two turns of what appeared to be a huge serpent. The head and tail appeared to have a length beyond the coils of about thirty feet, and its girth eight feet or nine feet. The serpent whirled its victim round and round for about fifteen minutes, and then suddenly dragged the whale to the bottom, head first.

"GEO. DREVAR, Master ; HORATIO THOMPSON, JOHN HENDERSON LANDELLS, OWEN BAKER, and WILLIAM LEWARN.

"Again, on July 13, a similar serpent was seen, about two hundred yards off, shooting itself along the surface, head and

neck being out of the water several feet. This was seen only by the captain and one ordinary seaman.

“GEORGE DREVAR, Master.

“A few moments after it was seen some 60 feet elevated perpendicularly in the air by the chief officer and the following seamen :—Horatio Thompson, Owen Baker, Wm. Lewarn. And we make this solemn declaration, conscientiously believing the same to be true.”

In the *Illustrated London News*, of November 20th, 1875, there had previously appeared a letter from the Rev. E. L. Penny, Chaplain to H.M.S. *London*, at Zanzibar, describing this occurrence and also the representation of a sketch (which I am kindly permitted to reproduce here), drawn by him from the descriptions given by the captain and crew of the *Pauline*. “The whale,” he said, “should have been placed deeper in the water, but he would then have been unable to depict so clearly the manner in which the animal was attacked.” He adds that, “Captain Drevar is a singularly able and observant man, and those of the crew and officers with whom he conversed were singularly intelligent ; nor did any of their descriptions vary from one another in the least : there were no discrepancies.” The event took place whilst their vessel was on her way from Shields to Zanzibar, with a cargo of coals, for the use of H.M.S. *London*, then the guard ship on that station.

It is impossible to doubt for a moment the genuineness of the statement made by Captain Drevar and his crew, or their honest desire to describe faithfully that which they believed they had seen ; but the height to which the snake is said to have upreared itself is evidently greatly exaggerated ; for it is impossible that any serpent could “elevate its body some sixty feet perpendicularly in the air”—nearly one-third of the height of the Monument of the Great Fire of

FIG. 20.—THE ‘‘SEA SERPENT’’ AND SPERM WHALE AS SEEN FROM THE ‘PAULINE.’

London. I have no desire to force this narrative of the master and crew of the *Pauline* into conformity with any preconceived idea. They may have seen a veritable sea-serpent; or they may have witnessed the amours of two whales, and have seen the great creatures rolling over and over that they might breathe alternately by the blow-hole of each coming to the surface of the water; or the supposed coils of the snake may have been the arms of a great calamary, cast over and around the huge cetacean. The other two appearances—1st, the animal “seen shooting itself along the surface with head and neck raised” (p. 77), and 2nd, the elevation of the body to a considerable height, as in Egede’s sea monster, (p. 67), would certainly accord with this last hypothesis; but, taking the statement as it stands, it must be left for further elucidation.

On the 28th of January, 1879, a “sea-serpent” was seen from the s.s. *City of Baltimore*, in the Gulf of Aden, by Major H. W. J. Senior, of the Bengal Staff Corps. The narrator “observed a long, black object darting rapidly in and out of the water, and advancing nearer to the vessel. The shape of the head was not unlike pictures of the dragon he had often seen, with a bull-dog expression of the forehead and eyebrows. When the monster had drawn its head sufficiently out of the water, it let its body drop, as it were a log of wood, prior to darting forward under the water. This motion caused a splash of about fifteen feet in length on either side of the neck much in the ‘shape of a pair of wings.’” This last particular of its appearance, as well as its movements, suggest a great calamary; but, as one with “a bull-dog expression of eyebrow, visible at 500 yards distance,” does not come within my ken, I will not claim it as such.

In June 1877 Commander Pearson reported to the

Admiralty, that on the 2nd of that month, he and other officers of the Royal Yacht *Osborne*, had seen, off Cape Vito, Sicily, a large marine animal, of which the following account and sketches were furnished by Lieutenant Haynes,

FIG. 21.—THE “SEA SERPENT” AS SEEN FROM THE ‘CITY OF BALTIMORE.’

and were confirmed by Commander Pearson, Mr. Douglas Haynes, Mr. Forsyth, and Mr. Moore, engineer.

“Lieutenant Haynes writes, under date, ‘Royal Yacht *Osborne*, Gibraltar, June 6’: On the evening of that day, the sea being perfectly smooth, my attention was first called by seeing a ridge of fins above

the surface of the water, extending about thirty feet, and varying from five to six feet in height. On inspecting it by means of a

FIG. 22.—THE “SEA SERPENT” AS SEEN FROM H.M. YACHT ‘OSBORNE.’
PHASE I.

telescope, at about one and a-half cables’ distance, I distinctly saw a head, two flappers, and about thirty feet of an animal’s shoulder.

FIG. 23.—THE “SEA SERPENT” AS SEEN FROM H.M. YACHT ‘OSBORNE.’
PHASE 2.

The head, as nearly as I could judge, was about six feet thick, the neck narrower, about four to five feet, the shoulder about fifteen

feet across, and the flappers each about fifteen feet in length. The movements of the flappers were those of a turtle, and the animal resembled a huge seal, the resemblance being strongest about the back of the head. I could not see the length of the head, but from its crown or top to just below the shoulder (where it became immersed), I should reckon about fifty feet. The tail end I did not see, being under water, unless the ridge of fins to which my attention was first attracted, and which had disappeared by the time I got a telescope, were really the continuation of the shoulder to the end of the object's body. The animal's head was not always above water, but was thrown upwards, remaining above for a few seconds at a time, and then disappearing. There was an entire absence of 'blowing,' or 'spouting.' I herewith beg to enclose a rough sketch, showing the view of the 'ridge of fins,' and also of the animal in the act of propelling itself by its two fins."

It seems to me that this description cannot be explained as applicable to any one animal yet known. The ridge of dorsal fins might, possibly, as was suggested by Mr. Frank Buckland, belong to four basking sharks, swimming in line, in close order; but the combination of them with long flippers, and the turtle-like mode of swimming, forms a zoological enigma which I am unable to solve.

This brings us face to face with the question: "Is it then so impossible that there may exist some great sea creature, or creatures, with which zoologists are hitherto unacquainted, that it is necessary in every case to regard the authors of such narratives as wilfully untruthful, or mistaken in their observations, if their descriptions are irreconcilable with something already known?" I, for one, am of the opinion that there is no such impossibility. Calamaries or squids of the ordinary size have, from time immemorial, been amongst the commonest and best known of marine animals in many seas; but only a few years ago any one who expressed his belief in one formidable enough to cap-

size a boat, or pull a man out of one, was derided for his credulity, although voyagers had constantly reported that in the Indian seas they were so dreaded that the natives always carried hatchets with them in their canoes, with which to cut off the arms or tentacles of these creatures, if attacked by them. We now know that their existence is no fiction; for individuals have been captured measuring more than fifty feet, and some are reported to have measured eighty feet, in total length. As marine snakes some feet in length, and having fin-like tails adapted for swimming, abound over an extensive geographical range, and are frequently met with far at sea, I cannot regard it as impossible that some of these also may attain to an abnormal and colossal development. Dr. Andrew Wilson, who has given much attention to this subject, is of the opinion that "in this huge development of ordinary forms we discover the true and natural law of the production of the giant serpent of the sea." It goes far, at any rate, towards accounting for its supposed appearance. I am convinced that, whilst naturalists have been searching amongst the vertebrata for a solution of the problem, the great unknown, and therefore unrecognized, calamaries by their elongated, cylindrical bodies and peculiar mode of swimming, have played the part of the sea-serpent in many a well-authenticated incident. In other cases, such as some of those mentioned by Pontoppidan, the supposed "vertical undulations" of the snake seen out of water have been the burly bodies of so many porpoises swimming in line—the connecting undulations beneath the surface have been supplied by the imagination. The dorsal fins of basking sharks, as figured by Mr. Buckland, or of ribbon-fishes, as suggested by Dr. Andrew Wilson, may have furnished the "ridge of fins;" an enormous conger is not an impossibility; a giant turtle

may have done duty, with its propelling flippers and broad back ; or a marine snake of enormous size may, really, have been seen. But if we accept as accurate the observations recorded (which I certainly do not in all cases, for they are full of errors and mistakes), the difficulty is not entirely met, even by this last admission, for the instances are very few in which an ophidian proper—a true serpent—is indicated. There has seemed to be wanting an animal having a long snake-like neck, a small head and a slender body, and propelling itself by paddles.*

The similarity of such an animal to the *Plesiosaurus* of old was remarkable. That curious compound reptile, which has been compared with “a snake threaded through the body of a turtle,” is described by Dean Buckland, in his *Bridgewater Treatise*, as having “the head of a lizard, the teeth of a crocodile, a neck of enormous length resembling the body of a serpent, the ribs of a chameleon, and the paddles of a whale.” In the number of its cervical vertebræ (about thirty-three) it surpasses that of the longest-necked bird, the swan.

The form and probable movements of this ancient saurian agree so markedly with some of the accounts given of the “great sea-serpent,” that Mr. Edward Newman advanced the opinion that the closest affinities of the latter would be found to be with the *Enaliosauria*, or marine lizards, whose

* It must be noted, however, that in almost every case, except that of the *Osborne*, the paddles were *supposed*, not *seen*, and were invented to account for an animal of great length progressing at the surface of the water at the rate of twelve to fifteen miles an hour without its being possible to perceive, upon the closest and most attentive inspection, any undulatory movement to which its rapid advance could be ascribed. As the great calamaries were unknown, their mode of swift retrograde motion, by means of an outflowing current of water, was of course unsuspected.

fossil remains are so abundant in the oolite and the lias. This view has also been taken by other writers, and emphatically by Mr. Gosse. Neither he nor

Mr. Newman insist that the "great unknown" must be the *Plesiosaurus* itself. Mr. Gosse says, "I should not look for any species, scarcely even any genus, to be perpetuated from the oolitic period to the present. Admitting the actual continuation of the order *Enaliosauria*, it would be, I think, quite in conformity with general analogy to find some salient features of several extinct forms."

The form and habits of the recently-recognized gigantic cuttles account for so many appearances which, without knowledge of them, were inexplicable when Mr. Gosse and Mr. Newman wrote, that I think this theory is not now forced upon us. Mr. Gosse well and clearly sums up the evidence as follows: "Carefully comparing the independent narratives of English witnesses of known character and position, most of them being officers under the crown, we have a creature possessing the following characteristics: 1st. The general form of a serpent. 2nd. Great length, say above sixty feet. 3rd. Head considered to

Plesiosaurus Dolichodeirus
restored by The Rev. W. D. Conybeare.

FIG. 24.

resemble that of a serpent. 4th. Neck from twelve to sixteen inches in diameter. 5th. Appendages on the head,

neck, or back, resembling a crest or mane. (Considerable discrepancy in details.) 6th. Colour dark brown, or green, streaked or spotted with white. 7th. Swims at surface of the water with a rapid or slow movement, the head and neck projected and elevated above the surface. 8th. Progression, steady and uniform; the body straight, but capable of being thrown into convolutions. 9th. Spouts in the manner of a whale. 10th. Like a long nun-buoy." He concludes with the question—"To which of the recognized classes of created beings can this huge rover of the ocean be referred?"

I reply: "To the Cephalopoda. There is not one of the above judiciously summarized characteristics that is not supplied by the great calamary, and its ascertained habits and peculiar mode of locomotion.

Only a geologist can fully appreciate how enormously the balance of probability is contrary to the supposition that any of the gigantic marine saurians of the secondary deposits should have continued to live up to the present time. And yet I am bound to say, that this does not amount to an impossibility, for the evidence against it is entirely negative. Nor is the conjecture that there may be in existence some congeners of these great reptiles inconsistent with zoological science. Dr. J. E. Gray, late of the British Museum, a strict zoologist, is cited by Mr. Gosse as having long ago expressed his opinion that some undescribed form exists which is intermediate between the tortoises and the serpents.*

* Dr. Gray wrote in his 'Synopsis of Genera of Reptiles,' in the *Annals of Philosophy*, 1825: "There is every reason to believe from general structure that there exists an affinity between the tortoises and the snakes; but the genus that exactly unites them is at present unknown to European naturalists; which is not astonishing when we consider the immense number of undescribed animals which are daily

FIG. 25.—THE "SEA SERPENT," ON THE ENALIOSAURIAN HYPOTHESIS.

After Mr. P. H. Gosse, F.R.S.

Professor Agassiz, too, is adduced by a correspondent of the *Zoologist* (p. 2395), as having said concerning the present existence of the *Enaliosaurian* type that "it would be in precise conformity with analogy that such an animal should exist in the American Seas, as he had found numerous instances in which the fossil forms of the Old World were represented by living types in the New."

On this point, Mr. Newman records, in the *Zoologist* (p. 2356), an actual testimony which he considers, "in all respects, the most interesting natural-history fact of the present century." He writes :

"Captain the Hon. George Hope states that when in H.M.S. 'Fly,' in the Gulf of California, the sea being perfectly calm and transparent, he saw at the bottom a large marine animal with the head and general figure of the alligator, except that the neck was much longer, and that instead of legs the creature had four large flappers, somewhat like those of turtles, the anterior pair being larger than the posterior ; the creature was distinctly visible, and all its movements could be observed with ease ; it appeared to be pursuing its prey at the bottom of the sea ; its movements were somewhat serpentine, and an appearance of annulations, or ring-like divisions of the body, was distinctly perceptible. Captain Hope made this relation in company, and as a matter of conversation. When I heard it from the gentleman to whom it was narrated, I enquired whether Captain Hope was acquainted with those remarkable fossil animals *Ichthyosauri* and *Plesiosauri*, the supposed forms of which so nearly correspond with what he describes as having seen alive, and I cannot find that he had heard of them ; the alligator being the only animal he mentioned as bearing a partial similarity to the creature in question."

occurring. If I may be allowed to speculate from the peculiarities of structure which I have observed, I am inclined to think that the union will most probably take place by some newly discovered genera allied to the marine or fluviatile soft-skinned turtles and the marine serpent."

Unfortunately, the estimated dimensions of this creature are not given.

That negative evidence alone is an unsafe basis for argument against the existence of unknown animals, the following illustrations will show :

During the deep-sea dredgings of H.M.S. *Lightning*, *Porcupine*, and *Challenger*, many new species of mollusca, and others which had been supposed to have been extinct ever since the chalk epoch, were brought to light ; and by the deep-sea trawlings of the last-mentioned ship, there have been brought up from great depths fishes of unknown species, and which could not exist near the surface, owing to the distension and rupture of their air-bladder when removed from the pressure of deep water.

Mr. Gosse mentions that the ship in which he made the voyage to Jamaica was surrounded in the North Atlantic, for seventeen continuous hours by a troop of whales of large size of an undescribed species, which on no other occasion has fallen under scientific observation. Unique specimens of other cetaceans are also recorded.

We have evidence, to which attention has been directed by Mr. A. D. Bartlett, that "even on land there exists at least one of the largest mammals, probably in thousands, of which only one individual has been brought to notice, namely, the hairy-eared, two horned rhinoceros (*R. lasiotis*), now in the Zoological Gardens, London. It was captured in 1868, at Chittagong, in India, where for years collectors and naturalists have worked and published lists of the animals met with, and yet no knowledge of this great beast was ever before obtained, nor is there any portion of one in any museum. It remains unique.

I arrive, then, at the following conclusions: 1st. That, without straining resemblances, or casting a doubt upon

narratives not proved to be erroneous, the various appearances of the supposed "Great Sea-serpent" may now be nearly all accounted for by the forms and habits of known animals ; especially if we admit, as proposed by Dr. Andrew Wilson, that some of them, including the marine snakes, may, like the cuttles, attain to an extraordinary size.

2nd. That to assume that naturalists have perfect cognizance of every existing marine animal of large size, would be quite unwarrantable. It appears to me more than probable that many marine animals, unknown to science, and some of them of gigantic size, may have their ordinary habitat in the great depths of the sea, and only occasionally come to the surface ; and I think it not impossible that amongst them may be marine snakes of greater dimensions than we are aware of, and even a creature having close affinities with the old sea-reptiles whose fossil skeletons tell of their magnitude and abundance in past ages.

It is most desirable that every supposed appearance of the "Great Sea-serpent" shall be faithfully noted and described ; and I hope that no truthful observer will be deterred from reporting such an occurrence by fear of the disbelief of naturalists, or the ridicule of witlings.

FINIS.

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