

CISTUDO (ONYCHOTRIA) MEXICANA. Three-toed Box Tortoise. Shell oblong, dark-brown, pale, spotted and rayed, spot and rays sometimes confused.

Vertebral plates with a nearly continued keel, and with a small intermediate one between the usual fourth and fifth plates.

The hinder margin acute revolute.

The head pale brown; the legs yellow or orange spotted, with five unequal claws.

The hind legs brown, uniform, with only three large claws, the middle and the front one largest.

The sternum flat; the gular plates wide in front, and suddenly narrowed behind.

Hab. Mexico.

There was a specimen of the *Kinosternon scorpiodes*, and of the Gopher, *Testudo gopher*, in the same collection: the latter only differed from the usual North American specimen in being rather larger and blacker.

February 27, 1849.

William Yarrell, Esq., Vice-President, in the Chair.

The Secretary reported that he had received a letter from His Excellency Lieut.-Col. Butterworth, the Governor of Singapore, dated Jan. 6th, in which he was informed of the shipment of some additions to the Society's menagerie. The facilities possessed by Lieut.-Col. Butterworth for securing the most interesting productions of the Indian Archipelago cannot fail to render the interest which he takes in the progress of this Society of the greatest advantage to it.

The Secretary further stated that he had received information through the Chairman, that Mrs. Martin Stevenson, of Valparaiso, had received from Don Francisco Javier Ovalle a pair of young Pumas, captured on his estate of Catapilco, which he was desirous of presenting to this Society. Mr. and Mrs. Stevenson had obligingly provided for the custody of these interesting animals, until they were sufficiently mature to admit of their being transmitted to England.

The collection had been increased since the last meeting by three living examples of *Lemur rufifrons*, Benn., and one of *Nycticebus javanicus*.

The following papers were read:—

1. DESCRIPTION OF SEVEN NEW SPECIES OF MARGINELLA AND TWO OF CYPRÆA. BY JOHN S. GASKOIN.

MARGINELLA QUADRILINEATA. *Marg. testâ oblongo-ovatâ, pallidè virescente, nitidâ; lineis rufis quatuor, equidistantibus*, No. CXCI.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

transversis; basi rotundatâ, lævi; aperturâ latâ anticè præcipuè; canali latissimo; labio lato, marginato, ultra apicem extenso; columellâ anticè quadriplicatâ, plicis duabus anticis concurrentibus canalem intermediam formantibus; apice oblito.

Shell oblongo-ovate, of an uniform, opaque, pale-greenish colour, highly polished, with four distinct, nearly equidistant, very narrow, uninterrupted, even, red lines or bands, surrounding the shell from the upper or outer edge of the incrassated margin of the lip, which continuing within the columella, extend over the earliest formation of whorls: these lines are equally conspicuous on the inside of the last whorl, and no doubt throughout the whole inside of the shell. The same pale-greenish colour pervades the inside as the outer part; base round and smooth; aperture wide, especially at the anterior portion, where the columella suddenly contracts in diameter, subspiral, curved posteriorly; channel very broad, which and the edge of the lip are subpellucid and whitish; at the anterior part of the columella are four prominent rather tenuous plaits: the first two conjoin and form the inner side of the channel; the two posterior are on the columella; between the inner side of the channel and the anterior third of the columella is a concavity; lip thick, smooth, extends beyond the apex, no trace of crenulation, strongly marginated, and the margin has its upper edge or rim of a darker colour than the shell; it proceeds over the arch of the channel, and becomes obliterated just above the third plait; apex imperceptible.

Long, $\frac{90}{100}$ of an inch; wide, $\frac{45}{100}$ of an inch.

Hab. —?

The only specimens I have seen of this species are an adult shell in the cabinet of Mr. Metcalfe, and an adult and a young one in my own; all of which were brought to this country in H.M.S. the Samarang.

It cannot be confounded with any known species of *Marginella*; the four narrow conspicuous red lines or bands, the two anterior plaits being a bifurcation of the inner wall of the channel, the wide aperture, and general form of the shell are ample distinctives.

MARGINELLA PUDICA. *Marg. testâ oblongo-ovatâ, albidâ, fasciis sex vel septem, transversis, continuis, pallidissimè viridi-fulvis; maculis distinctis pallidissimè brunneis interruptis; basi rotundatâ; aperturâ latiusculâ; labio crasso, marginato, ultra apicem extenso; columellâ quinqueplicatâ; canali lato et profundo; margine interno labii minutè denticulato; apice lato, obtuso.*

Shell oblong-ovate, of a white colour, having six or seven very faint greenish-brown bands traversing the shell from the border of the aperture to the upper edge of the margin, interrupted by rather large, distinct, very light-brown spots or markings; these bands have between them broad white lines, which are the colour of the shell; the posterior end of the shell is in an evenly projecting ridge or varix, surrounding the spire; base round, colour of the shell; aperture rather wide, curved (bowed); lip thick, extending a little beyond the apex, as described in reference to the posterior portion of the shell; margin rather thick, and extending over the arch of the channel; the

columella is furnished with five plaits, the three anterior are prominent, especially the second, which extending over the base obliquely, forms a thickened varix; small obtuse denticulations exist along the whole inner edge of the lip; channel deep and wide; apex broad and obtuse.

Long, $\frac{2.8}{1.00}$ of an inch; wide, $\frac{1.8}{1.00}$ of an inch.

Hab. Central America.

Cab. Metcalfe, Gaskoin, Cuming.

In size, form, markings, fewer plaits, the denticulations on the inner edge of the lip, &c., separate this species from all others; its nearest affinity may be the *Marginella tessellata*, Lam., although even that affinity is very distant; in the size remarkably so.

MARGINELLA TRIPLICATA. *Marg. testâ ovatâ, ventricosâ, fulvescente, lævi, nitidâque; aperturâ angustâ; labio tenui, inflexo, marginato; columellâ anticè triplicatâ; canali nullo; spirâ subelatâ, anfractibus distinctis, apice acutiusculo.*

Shell ovate, ventricose, of a general light fawn colour, without bands or other markings, smooth and shining; base round, aperture rather narrow; lip thin, much-inflexed, marginated; three fine white plaits are situated at the anterior portion of the columella, equidistant; the first forms the termination of the columella, the second passes very slightly on to the base, in a parallel direction to the first, the third not at all so; these plaits convey an idea as though they were differently produced to those of the generality of the *Marginellæ*; that is, in not being formed on the columella, but as though the columella had been delved in itself, leaving the lines or plaits projecting; and the semblance of a fourth plait is given by the depth and abruptness of the notch beyond the third: channel none; spire slightly prominent, with distinct whorls; apex subacute.

Long, $\frac{3.4}{1.00}$ of an inch; wide, $\frac{2.0}{1.00}$ of an inch.

Hab. The Philippines, &c.

The gibbosity and sudden tapering of this shell, the uniformity of its coloration, in having but three plaits, and those at the anterior end of the columella, and its short but perfect spire, distinguish it from any species yet described.

I had intended, on determining to describe this shell, to have retained for it the appellation by which it is so well known to many naturalists and collectors—*Marginella angustoma*, although by whom so designated I have been unable to learn, it never having before been described nor figured; but finding afterwards that M. Deshayes has described and published a fossil species found at Grignon under that name, I am obliged to forgo my wish, and have called it from perhaps a more leading characteristic—*Marginella triplicata*.

MARGINELLA SERRATA. *Marg. testâ elongatâ, subcylindricâ, pallidâ; aperturâ angustâ; columellâ anticè quadriplicatâ; labio tenui, inflexo, valdè serrato dentibus sex vel octodecim; margine crasso; spirâ subelatâ, anfractis distinctis, apice obtusiusculo.*

Shell elongated, subcylindrical, of a very light greyish colour, some-

times with light brown cloudings ; base rather round, aperture narrow, columellar side nearly straight, with four nearly transverse equidistant plaits at the anterior portion, the first continuing to form the inner side of the channel, the second and the third passing obliquely forwards over the base, and the fourth in no degree so ; lip slightly spiral, inflexed, thin, and deeply serrated at its entire edge, forming sixteen to eighteen teeth ; margin thick, and continuous over the arch of the channel, and, like the lip, is of a lighter colour than the rest of the shell ; spire somewhat prominent, whorls distinct ; apex rather obtuse.

Long, $\frac{3.5}{1.00}$ of an inch ; wide, $\frac{1.6}{1.00}$ of an inch.

Hab. The Mauritius.

Cab. Cuming.

This species approaches nearest in form to the *Marg. triticea* of Lam., but has a much narrower aperture, and the edge of the lip is strongly serrated its entire length.

MARGINELLA CONTAMINATA. *Marg. testâ oblongo-ovatâ, pallidè floris lactis colore ; extus tenuissimè striatâ ; aperturâ latâ, labio crasso, columellâ sexplicatâ, plicis tribus anticis prominentioribus ; margine lato, planulatoque ; apice prominente obtusissimo.*

Shell oblongo-ovate, of an uniform pale cream colour, without bands or markings ; internally the colour is somewhat darker ; external texture of the shell is finely striated : the striæ terminate anteriorly at the thickened varix over the arch of the channel curving towards the columella, and in a similar manner at the edge of the white deposit around the spire ; base round, aperture wide, slightly curved ; on the columella are six or more white plaits, the three anterior being rather prominent, the first continuing to form the inner side of the channel ; the second forms a varix on the base of the shell ; the channel broad and deep ; a white deposit exists on the columella within the aperture, which widens and thickens outwardly from about the anterior fourth of the aperture, covering the plaits and proceeding over the arch of the channel, forming there a ridge or varix at its posterior edge, and diminishing in width as it approaches the lip, along the whole length of which it continues forming a broad flat margin, and terminates around the spire, which is also covered by it : apex slightly prominent, very obtuse.

Long, 1 inch ; wide, $\frac{5}{10}$ of an inch.

Hab. — ?

Cab. Cuming, Gaskoin.

It differs from *Marginella cornea*, Lam., in its more elongated form, the number, distribution and construction of the plaits, in its broad, flat margin, in the thinness and planeness of the lip internally, the varix at the anterior part of the base, &c.

MARGINELLA LINEATO-LABRUM. *Marg. testâ ovatâ, lævi, anfractibus posticè rotundatis, pallidè flavescente, nigro lineato-punctatâ ; spirâ prominente ; basi rotundatâ ; aperturâ latisimâ ; columellâ quadriplicatâ ; labio crassiusculo, marginato,*

lineis octo vel novem transversis, supra labrum et marginem continuis.

Shell ovate, smooth, the whorls even (not crenulated), of a light yellow-brown colour, having on the last whorl nine rows of distinct small black spots, or short markings, obliquely longitudinally placed, the two posterior rows of which are continuous along the whorls of the spire even to the apex; spire very prominent, whorls rather gibbous; base round; aperture very wide; the columella has four white prominent plaits, the two anterior passing obliquely outwards, the first to form the inner elevated side of the channel, the two posterior are transverse; lip, slightly bowed, is thick and marginated, and has eight or nine nearly equidistant, dark-reddish, somewhat broad lines crossing its edge and continuing over the margin; margin continuous, but with much less thickness, over the arch of the channel, and with the first or anterior plait; channel broad and deep, obtuse.

Long, $\frac{6.0}{100}$ of an inch; wide, $\frac{3.0}{100}$ of an inch.

Hab. —?

Cab. Cuming.

The only specimen I have seen of this peculiar species is not in fine condition; when so, it must be very beautiful. It differs from *Marginella Faba*, Linn., in the evenness of the shoulders of the whorls, its less attenuated form, and the linear markings of the margin, &c.

MARGINELLA PULCHERRIMA. *Marg. testá oviformi, fulvescente, fasciis albis quinque, angustis, transversis, maculis linearibus nigris, in centros fasciarum conspicuis; interstitiis fasciâ primâ ad secundam fasciam, tertiâque ad quartam, lineis plurimis tenuissimis fulvescentibus longitudinalibus notatis; aperturâ albâ, latiuscula; columellâ quinque-plicata; labio tenui; apice distincto.*

Shell oviform, shining, of a light fawn colour, with five transverse, distinct, narrow, even, uninterrupted white bands surrounding the shell, from the edge of the lip, the two anterior terminating at the columellar edge of the aperture, the others proceeding inwards over the columella; the posterior is always the least distinct (conspicuous): floating, as it were, in the centre of these white bands, are very dark-brown or black, equidistant, linear markings or streaks, and similar markings in colour and form radiate obliquely on the slight ridge which encircles the spire: the spaces of the shell between the anterior band and the second, and between the third and the fourth, are occupied by numerous, fine, longitudinal and parallel light-brown lines, the other spaces between the bands are irregularly marked with the same colouring, varying in individual specimens, in intensity of coloration, especially in the middle space (that between the third and the fourth bands); base round; aperture white, rather wide, flexuous posteriorly; five plaits on the columella; the three anterior project; the first is continuous with the inner side of the channel, the second takes a similar direction behind it, passing obliquely over the base of the shell, and next this is a white varix following outside the aperture a similar direction, on which are four or five dark-brown spots; lip thin, no margin; apex perceptible.

Long, $\frac{20}{100}$ of an inch ; wide, $\frac{14}{100}$ of an inch.

Hab. West Indies.

Cab. British Museum, Metcalfe, Gaskoin, &c.

Differs from the *Voluta catenata* of Montagu* (*Marginella* of others) in having but four distinct, and one rather obscure, bands; in these being uninterrupted, and the linear markings floating in their centres, and not linking interrupted or disjointed portions of the bands, as in *M. catenata*; in the dark colour, and the more oviform shape. I have hitherto found this species among parcels of *Marginella sagittata* of Hinds.

CYPRÆA CRIBELLUM. *Cyp. testā subcylindricā, lævi, albā, bruneo omnino obtectā, præter maculis numerosis, testā concoloribus, ferè circularibus, inæqualibus et irregulariter dispensatis; marginibus bruneo-rufescente punctatis; basi subplanulatā, albā; aperturā latā, præcipuè anticè; columellā ventricosiusculā; dentibus labii prominentibus, æqualibus, circa quindecim; dentibus columellaribus subobsoletis (præter dente primo) circa duodecim; dente primo majus prominente deinde anticè est incisura profunda; sulco columellari nullo, extremitatibus anticis leviter productis, externè valdè convergente; canali lato et profundo; extremitatibus posticis obtusis; canali postico lato, aperturā rectè continuo; margine externo incrassato; spirā latè umbilicatā.*

Shell subcylindrical, smooth, white, covered by a dark-brown coating except at numerous nearly circular white spots, of unequal sizes and irregular distribution, thus leaving at those spots the colour of the shell to view; the line of meeting of the two mantles of the mollusc on the dorsum is generally perceptible; internally of a brown colour; outer edge of the margin more or less dotted with rather large dark reddish-brown dots, similar dottings, but less in degree, on the columellar side of the base; base rather flat, white (white deposit, on the centre of the columellar side, semitransparent); aperture wide, especially anteriorly, inner edge of the lip spiral; columella slightly ventricose; teeth on the lip prominent, even, extending partly on to the base, about fifteen in number, those on the columella very slightly prominent (excepting the first), not extending on the base,—about twelve in number; the first greatly projects, between which and the inner anterior extremity is a deep notch,—no columellar groove,—and at the posterior half of the aperture the teeth exist along the outer, those on the inner edge being mere indications of teeth; extremities, anterior very slightly produced, the outer one converging greatly; posterior extremities obtuse, very slightly produced; channels, anterior wide and deep, posterior rather wide and in a straight line with the aperture; margin, only on the outer side, incrassated; spire widely umbilicated.

Long, $\frac{14}{20}$ of an inch ; wide, $\frac{9}{20}$ of an inch.

* Which I believe to be a West Indian production only, and not as Montagu was led to suppose, a British species. I have found the *Marginella catenata* frequently among the small West Indian Marginellæ, as have many others, and from no other source did Montagu himself obtain it.

Hab. Mediterranean Sea.

Cab. Gaskoin, Saul, &c.

This species differs from *Cypræa Cribraria* of Linn. in the general conformation of the shell, being more cylindrical, in its short, obtuse extremities, its wide aperture, particularly anteriorly, the large dottings on the margin, the character of the teeth, the internal colour of the shell, &c.

CYPRÆÆ PULICIS VARIETAS. *Cyp. testâ longiore, dentibus numerosioribus minutioribusque, supra labrum circa viginti-novem, supra columellam circa viginti-tribus; canali postico denticulato.*

Shell longer in form, of a light reddish-brown colour, aperture narrower and straighter, teeth finer and much more numerous than the ordinary form, being about twenty-nine on the lip, while the prototype has about nineteen, and on the columella side, about twenty-three, against from fourteen to seventeen; posterior channel more or less denticulated.

Hab. —?

Cab. Cuming, Gaskoin.

2. DESCRIPTION OF A NEW SPECIES OF NUTCRACKER.

BY JOHN GOULD, F.R.S. ETC.

NUCIFRAGA MULTIPUNCTATA, *Gould.*

Crown of the head and nape of the neck brownish black; feathers of the face, sides of the neck, back, chest and abdomen brownish black, with a broad and conspicuous mark of dull white down the centre; wings glossy greenish black, the coverts and secondaries with a lengthened triangular mark of white at the tip, a faint trace of a similar mark appearing on the tips of the primaries; tail glossy greenish black, the two centre feathers slightly, the next on each side more largely, and the remaining three extensively tipped with white, the extent of the white increasing as the feathers recede from the centre; under tail-coverts white; upper tail-coverts and thighs striated with white.

Total length, $14\frac{1}{4}$ inches; bill, $1\frac{7}{8}$; wing, $8\frac{3}{4}$; tail, 7; tarsi, $1\frac{5}{8}$.

This species exceeds in size both the *N. caryocatactes* and *N. hemispila*, but at the same time has a smaller and more slender bill than either of those birds; it also differs from both of them in its lengthened and cuneiform tail; it has a greater quantity of white on the apical portion of the tail-feathers than the European species, but less than is found in the *N. hemispila*; the white markings of the back and the entire under surface are also much larger and more numerous than in either of the other species, and are most remarkably developed on the scapularies.

The only specimen I have seen of this fine species is in the Museum of the Philosophical Society at York; its precise habitat is unknown, but as other species which were certainly from Simla in India accompanied it, we may reasonably conclude it was from that country.

3. NOTES ON THE DISSECTION OF THE PARADOXURUS TYPUS, AND OF DIPUS ÆGYPTIUS. BY H. N. TURNER, JUN.

Having received, through the liberality of the Society, a few of the animals that have died in the menagerie in the course of the present winter, I feel bound to lay before them, as well as I may be able, whatever details of structure I observe which may be new, or may give rise to ideas calculated to assist in the advancement of the science. Since the Society have done me the honour to insert in their Proceedings the somewhat lengthened communication which I was last permitted to lay before them, I hope that the remarks I have now to offer, some of which have a bearing on the same subject, may also prove acceptable.

It formed part of my object in that paper to demonstrate that the Viverrine group, (of which the Paradoxuri are now universally admitted to form a part,) are so closely allied to the Cats as to safely warrant their being united with them in one family, instead of being looked upon as a section intermediate to the canine and feline groups, or, on account of their number of tuberculous molars, more closely allied to the former, in which light they have very frequently been considered: and I think it will be apparent, from the observations I have now to bring forward, that the genus *Paradoxurus*, one of the least exclusively carnivorous of the order, and formerly associated with the Bears in the plantigrade division, has a much closer relationship with the group, which, from its being pre-eminently carnivorous, is usually considered as "typical" of the order, than naturalists have been wont to anticipate. It is not unfrequently the case, that when an affinity between two species or genera is established upon essential peculiarities of structure, certain minor details, or even habits and actions of the animal, remind one so forcibly of the relationship we have already proved to exist, that they assume an unlooked-for degree of interest; and, having kept for some time a living specimen of the common *Paradoxurus*, I think a few of the observations I have made upon it may on this account be interesting, in connection with the structural peculiarities which the receipt of a dead one has enabled me to remark.

The claws are as retractile as in the domestic Cat, although from the absence of the long and soft hair, with which the sides of the toes are clothed in the latter animal, they are fully exposed when in the retracted position. But on examining the claws of the Paradoxure, it becomes obvious that the raising of the point from the ground is not the only means employed by Nature to maintain their sharpness. Every one must have observed in the common Cat, as well as in the larger species preserved in our menageries, the habit of occasionally scratching or dragging with the claws against the surface of any hard substance, a process not apparently calculated to improve their sharpness, but obviously intended to aid the shelling off of the outer layer of the claw, which is continually renewed by growth from the root, and the blunted point is thus occasionally replaced by a new one. I have not observed this habit in the living *Paradoxurus*; but on examining the claws of the dead one, I noticed that some of them were

much larger than others, these being worn and blunted at the point, while the smaller ones were sharp; also that the series of claws on each foot were irregular as to their sizes, and that the corresponding claws on the opposite feet in some cases differed greatly in size; so that it would appear, that in the absence of the scratching propensity, the claws scale off naturally, and to a much larger extent at a time than in the Cats. I have occasionally noticed my living specimen with a claw apparently loose, but the casting off of the outer layer of the nail is a difficult thing to verify by actual observation.

On one occasion, my specimen having escaped from his cage, on my seizing him by the neck for the purpose of replacing him therein, he made use of his claws to defend himself, just as a cat would naturally be expected to do; while it is well known that any animal of the dog tribe, being seized in that manner, is helpless, having no instinct prompting him to make use of his extremities against his captor; in this tribe also the paws are never used for seizing, but only for the purposes of locomotion, and to steady the prey upon the ground, while the teeth perform their office. The positions sometimes assumed by the *Paradoxurus* in a state of repose, also resemble those of the cat; for instance, it frequently lowers the body between the fore-paws, approximating the shoulder to the foot, while the elbow remains raised by the side: the canine animals, on the other hand, *never* crouch without applying the elbow to the ground. The *Paradoxurus* again resembles the Cat in the habit of occasionally bending the head vertically beneath the neck while asleep, a position never assumed by the Dog.

In all the anatomical characters which in my former communication I assigned to the Felidæ (in which family the viverrine section is included), the *Paradoxurus* fully agrees; those presented by the generative and odoriferous organs are the most remarkable. There is no true musk-bag, simply the two secerning pouches situated one on each side the anus, which are so common among the carnivora. In addition to these, there is at the base of the prepuce, an oval, flat, naked space, which is not simply a secreting surface, as stated by Mr. Gray in a paper contributed to the Proceedings a few years back, but contains a number of minute orifices, each opening into a somewhat cylindrical glandular sac: these are arranged vertically side by side, and, together with the anal pouches, secrete the substance which imparts to the animal its characteristic odour. The generative organs are altogether very largely developed; the prostate is large, of a slightly lobulated form, and the urethra passes obliquely through its centre. Cowper's glands, whose presence is characteristic of the Felidæ, are remarkably large, causing a prominence externally posterior to the scrotum; and, as usual in the family, each is surrounded by a powerful muscular envelope, which is at least an eighth of an inch in thickness; the fibres converge to a tendinous portion, which extends, from the point where the duct issues, some distance on each side of the gland; the size of these organs altogether is about equal to that of the testes. The length of the penis, from the orifices of Cowper's duct to the meatus urinarius, is a little more than three inches; it is

perfectly flexible in every part, and therefore the os penis must be either very minute or wanting; this is another feline character, since in the Bears and Weasels, as well as in the Dogs, the bone forms a considerable part of the organ. The glans is cylindrical, it tapers a little for about six-tenths of an inch, then terminates suddenly in a small conical point, in the groove around the base of which is situated at the lower part the urethral orifice. The body of the glans has a slight median groove beneath, and its whole surface is covered with horny spines directed backwards. Cuvier, who alludes to a similar peculiarity in the Cats, makes no mention of it, either in the *Ichneumon*, the *Civet*, or the *Hyæna*. Its existence is therefore an interesting mark of affinity between two genera apparently so dissimilar, although, from its inconstancy, it will not serve as a character of the family. In the *Paradoxurus* the spines are minute, very numerous, and regularly distributed*.

The same organs in the *Jerboa* present some peculiarities worthy of notice. I will observe, in addition to what has before been described, that Cowper's glands are each curved upon itself in a manner similar to the *vesiculæ seminales*. The two sharp-pointed bony stylets with which the upper part of the glans is armed, and which have been mentioned by authors, arise about the middle of the dorsum of the glans, one on each side of a prominence of its substance; they are gently curved, and rather suddenly pointed at the end. In the recumbent condition they incline a little towards each other, just overhanging the extremity of the glans, and bear some resemblance to the pointed lower incisors of some small Rodent. The glans itself appears tripartite at the extremity, there being a deep fissure running the whole length of its under surface, and just at the extremity another on each side: at the meeting-point of the fissures is the urethral orifice. Just behind the origin of the bony stylets the presence of a small ossicle can be distinctly felt within the substance of the glans.

A very remarkable peculiarity in this little animal is, that amidst the long white hairs which clothe the lower part of the foot is a small sharp horny spike, situated just below the base of the middle toe, as if it were intended to enter the ground, and thus prevent the animal from slipping when it alights. This I have reason to believe is not generally known, although it must I think be alluded to by Dr. Shaw in his *General Zoology*, since he there remarks, "There is also a very small spur or back-toe, with its corresponding claw:" and subsequently adds, "nor does any vestige of it appear in the figure given by Dr. Pallas of the skeleton." This may well be, since it is simply a cutaneous development, having no connection with the skeleton whatever. I have looked at the specimens of the *Jerboa* in the British Museum, but in

* Since the above was written, I have received the body of a male *Coatimondi*. I alluded to that animal in my former paper, as being placed by Cuvier among the list of those possessing the *vesiculæ seminales*, which, I observed, required confirmation. I can now assert that they do not exist; the walls of the *vasa deferentia* are swollen immediately before these vessels enter the urethra, and the prostate has a more sudden projection at its upper end than I have observed in the musteline animals that I have dissected. The absence of the *vesiculæ seminales* is then a constant character of the true *Carnivora*.

consequence of their being dried and mounted, the little appendage, which is concealed by the hair, was not to be perceived; but in the *Alactaga*, as well as the same circumstances would permit, I could see that a little horny process existed, but was rough and blunt.

In the dissection of an animal whose only mode of progression consists of leaping with the hinder extremities, and which differs from the other jumping Mammalia in the circumstance, that in the position of rest the extremity only of the metatarsus is applied to the ground, the muscles of the leg may be expected to afford some points of interest. The most striking of these are, that none of the muscles situated upon the tibia remain fleshy for more than about half the length of that bone, each terminating in a long tendon; and that upon the foot itself there are no muscles whatever, the actions of the flexors of the toes being relieved by a strong ligament, which arises from the os calcis, and divides into five, giving one to the middle toe, two small sesamoid bones being developed in it; and two divisions to each of the other toes, the index and the annularis, each of which has also its sesamoid bones, those furthest from the axis of the foot being rather largely developed, extending some distance over the sides of the articulation. The ligament near its origin contains three little supernumerary bones, one on the outer, two on the inner side; the latter are grooved for the passage of the tendon of the flexor perforans. On the homology of this tendon I have next to remark. It might very naturally be expected, that in animals having no thumb on the hinder extremity, and in which the fibula is in great part wanting, the flexor longus pollicis, which in man has its origin in the fibula, would be either much reduced or absent; but so far from such being the case, it will be seen, on reference to any work on the comparative anatomy of the muscular system, that this muscle exists, and that its tendon becomes entirely confluent with that of the flexor longus digitorum. But further, I think it will appear that in those lower Mammalia, in which the thumb or the fibula, or both, are wanting or imperfectly developed, it is the flexor longus digitorum that is reduced in size, and the flexor longus pollicis that becomes the principal muscle acting on the toes. The dissection of the *Jerboa* made this homology very evident. The large flexor muscle which gives the perforating tendons to the toes arises, as may be expected, partly from the tibia as well as from the fibula; but it is distinctly shown to be the flexor longus pollicis, from the fact that its tendon passes through a distinct sheath, separate from and posterior to that which contains the tendons of the other two muscles, namely the flexor longus digitorum and the tibialis posticus. Of these, which are both very small, the former shows its homology most clearly, by arising from the surface of the tibia, immediately below the insertion of the popliteus. The tibialis posticus is an extremely minute and delicate muscle, arising only from the tibia.

In the Rabbit the two perforating flexors form a single muscle, having the proper origins of both; lower down they become to a certain extent separable, but the tendons are completely reunited *before* they pass the ankle, which they do in the place belonging to the

flexor longus pollicis. This compound muscle, occupying the whole posterior surface of the bones of the leg, so pushes round the tibialis posticus, that it takes the chief part of its origin from the inner side of the tibia, which in Mammalia generally is free from muscular attachment. In the *Paradoxurus* I found that the flexor longus digitorum has, in addition to its usual attachments, a point of origin in the head of the fibula; but then the bones are separate, and the flexor longus pollicis is a distinct muscle, having also origin in both bones, and each tendon passes the ankle in its usual place*.

March 13, 1849.

W. Yarrell, Esq., Vice-President, in the Chair.

The Secretary reported that a living specimen of *Herpestes fasciatus*, Desm., and *Cælogenys paca*, Linn., had just been added to the Society's collection. The former animal was exhibited to the Meeting.

The Secretary directed attention to a small series of skins of Mammalia and Birds collected in Ceylon and Sennaar by Aubrey Paul, Esq., the species of which were briefly noticed by Mr. Gray and Mr. Gould.

The following papers were read:—

1. NOTICE OF A PECULIARITY OF STRUCTURE OBSERVED IN THE AORTA OF THE WILD SWAN. BY JOHN DAVY, M.D., F.R.S. L. & E., INSPECTOR-GENERAL OF ARMY HOSPITALS, ETC. (COMMUNICATED BY MR. GULLIVER.)

When engaged in examining anatomically this bird (a full-grown female, killed in the neighbourhood of Chatham in February 1839), my attention was arrested by a peculiar appearance in the inferior portion of its aorta, which I shall briefly describe with the hope of leading to further inquiry. Before the ischiatic arteries are given off, the aorta is comparatively large and is enveloped externally in a dense fibrous coat, possessing very little elasticity: below the origin of these

* Since writing the above I have taken opportunities of looking at the same muscles in a Fox and in a Monkey (*Cercopithecus pygerythrus*). The former animal differed from the *Paradoxurus*, and resembled the Jerboa, in the great extent of the flexor longus pollicis and the much-reduced size of the tibialis posticus, which here also terminates in a long slender tendon, showing an interesting correspondence of *adaptive* character in two animals, in which the motion of the hind-limbs is vigorous, but of one kind only. In the Monkey the flexor longus pollicis is a much larger muscle than the flexor longus digitorum, and has considerable attachment to the tibia.

Meckel and Cuvier allude to the union of the two long flexors in the Rabbit before they pass the ankle, but neither author informs us at which point that takes place.



Yarrell, William. 1849. "February 27, 1849." *Proceedings of the Zoological Society of London* 1849, 17–28. <https://doi.org/10.1111/j.1469-7998.1849.tb00185.x>.

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