Harry Berkeley James.

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CONTRIBUTORS,

With References to the several Articles contributed by each.

PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY OF LONDON.

January 13, 1846.

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

Mr. Gould described a new species of *Nyctibius*, which he proposed to name

NYCTIBIUS BRACTEATUS. *Nyct. castaneo-fuscus; scapularum apicibus, et abdomine, maculis albis, quasi bracteis, ornatis.*

The general plumage rich chestnut-brown; the feathers of the head, back and breast freckled with black, and with an irregular-shaped blotch of black at the extremity of each feather; near the tip of each of the scapularies a spot of white encircled with black; on the lower part of the abdomen are two lunar-shaped marks of white, formed by a square spot of silvery white, bounded above and below with a narrow line of black, occupying the extremities of the feathers; wings dark brown, with the exception of the outer margins of the primaries, which are cinnamon-brown; tail chestnut, crossed with numerous bars, composed of two irregular narrow lines of black, and with a small spot of white at the tip; under tail-coverts buff, with a square spot of white at the tip.

Total length, 9½ inches; bill, 1¼; wing, 6; tail, 5½; tarsi, ½.

Hab. Santa Fé de Bogota.

Remark.—This species is the least of the genus that has come under my notice; the description is taken from a fine specimen in the collection of the Royal Institution of Liverpool.

January 27, 1846.

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

A paper by Professor Owen was read, containing the following notes on the dissection of the Chimpanzee (*Troglodytes niger*) which died in the menagerie of the Society Dec. 29, 1845:—

Chimpanzee (female):—Weight 42½ lbs.

MEASUREMENTS.	ft.	in.
From vertex to under-side of heel	3	6
From vertex to coccyx	2	0
From trochanter major femoris to external condyle of femur	0	9½
From external condyle of femur to external malleolus	0	9¼
From heel to end of middle toe	0	8¾
From distal end of first metatarsal to distal end of phalanges of first toe	0	2½
From acromion to external condyle of humerus	0	9½
From external condyle of humerus to distal end of radius	0	10
From distal end of radius to extremity of middle finger	0	10
Circumference of proximal part of arm	0	8
Circumference of proximal part of forearm	0	8⅛
Circumference of distal part of fore-arm	0	6⅛
Circumference of wrist	0	6
Circumference of proximal part of thigh	0	11
Circumference of distal part of thigh	0	9¼
Circumference of proximal part of leg	0	7
Circumference of distal part of leg	0	6¼
Circumference of metatarsus	0	7

Weight of brain (covered by arachnoid and pia mater), 13 oz. 4 dr.
Weight of liver, 2 lbs.
Weight of spleen, 2½ oz.
Weight of kidneys, 3 oz. each.

All the deciduous teeth were shed, and all the permanent teeth (on the right or healthy side of the mouth) were in place, except the canines and last molars; these latter teeth were more advanced in their development than the canines. This stage of dentition corresponds with that of the human subject at about the twelfth year; but allowance must be made for the later period of development of the canines in the Chimpanzee. Both upper and lower jaws on the left side were enlarged by disease; the gums inflamed and sloughy; the bicuspides or premolars and the first and second true molars had been pushed out, and their fangs more or less absorbed. The left outer permanent incisor of the upper jaw was half an inch distant

from the inner or median incisor, owing to intervening swelling of the jaw. A section of the diseased left ramus of the lower jaw showed the matrices of the canine and last molar in a healthy state in the closed alveolar cavities.

The irritation had extended to the left submaxillary and sublingual glands, which were much enlarged. Both tonsils were ulcerated. Both pleuræ, but particularly the left, were partly closed by old adhesions, which had obliterated the divisions of the lobes of the lungs. Only one small portion of the pulmonary tissue was consolidated by inflammation; it was about the size of a walnut, and situated in the lower lobe of the right lung, close to an adhesion of the pleura, but there were no tubercles developed in any part of the lungs.

A few old adhesions bound the spleen and omentum to the walls of the abdomen; all the other viscera of the abdominal cavity were healthy. The most remarkable morbid appearance was found upon the upper surface of the posterior lobe of the right hemisphere of the brain, where a circumscribed depression of two convolutions was formed, to which the dura mater strongly adhered, by the medium of a yellowish firm lymph; but there was no superficial ulceration of the cerebral substance.

With regard to the normal anatomy, I may at present add to the full descriptions that have been published of the dissections of younger Chimpanzees, that in this nearly adult individual the laryngeal pouch extended over the front of the neck, beneath the platysma myoides, as far down as the left axilla, passing there beneath the upper border of the great pectoral muscle.

The continuation of Mr. Lovell Reeve's paper on new species of *Pleurotoma* was then read:—

PLEUROTOMA DELICATA. *Pleur. testâ subulatâ, tenui, hyalinâ, transversim minutè et creberrimè elevato-striatâ, aperturâ brevi; pellucido-albâ, aurantio pallidissimè maculatâ.*

Hab. Lord Hood's Island, Pacific Ocean; Cuming.

PLEUROTOMA AXIS. *Pleur. testâ recto-acuminatâ, infernè contractâ, anfractibus supernè bicarinatis, infra transversim exiliter liratis, aperturâ oblongâ, sinu profundo, albidâ, aurantio-fusco subindistinctè tinctâ.*

Hab. Philippine Islands; Cuming.

PLEUROTOMA CREBRIPLICATA. *Pleur. testâ ovatâ, infernè ventricoso-sinuatâ, anfractibus concentricè crebriplicatis, transversim crebriliratis, aperturâ patulâ; albidâ, aurantio-fusco profusè variegatâ.*

Hab. Bolinao, Island of Luzon, Philippines (found under stones at low water); Cuming.

PLEUROTOMA ROSARIA. *Pleur. testâ abbreviato-subulatâ, basi truncatâ, anfractibus concentricè plicatis, lævibus, aperturâ brevi, vividè coccineo-rosea, anfractuum parte supremâ albizonatâ.*

Hab. —— ?

Pleurotoma Dysoni. *Pleur. testâ ovatâ, spirâ subturritâ, anfractibus supernè concavis et obtusè carinatis, infra rotundatis, longitudinaliter costatis, liris transversis decussatis, aperturâ brevi, sinu amplo; castaneo-fuscâ, anfractuum parte superiori hic illic interruptè albifasciatâ.*

Hab. Honduras; Dyson.

I have much pleasure in naming this shell, at the request of Mr. Cuming, after Mr. Dyson, whose adventurous researches after objects of natural history in a country not the most healthy for European travellers are certainly worthy of being recorded.

Pleurotoma Hondurasensis. *Pleur. testâ oblongo-ovatâ, spirâ acutâ, anfractibus rotundatis, nodoso-costatis; cinereo luteoque alternatim fasciatâ; labro incrassato.*

Hab. Honduras; Dyson.

Pleurotoma fenestrata. *Pleur. testâ fusiformi-ovatâ, subinflatâ, tenui, pellucidâ, anfractibus rotundis, liris superficiariis subdistantibus undique clathratis, labro simplici, sinu latiusculo; pellucido-albâ, aurantio pallidè tinctâ.*

Hab. Island of Mindoro, Philippines (found among coral).

Pleurotoma granicostata. *Pleur. testâ abbreviato-ovatâ, basi truncatâ, spirâ brevi, anfractibus pulcherrimè granoso-costatis, liris transversis clathratis; albidâ, roseo-fuscescente tinctâ, granis saturatioribus.*

Hab. —— ?

Pleurotoma regularis. *Pleur. testâ subpyramidali-ovatâ, anfractibus supernè concavis, medio obliquè regulariter costatis, aperturâ parvâ, sinu lato; albidâ.*

Hab. —— ?

Pleurotoma angicostata. *Pleur. testâ oblongo-ovatâ, spirâ turritâ, lævigatâ, anfractibus longitudinaliter costatis, costis subdistantibus, angustis, supernè angulatis, submucronatis; niveâ.*

Hab. —— ?

Pleurotoma mucronata. *Pleur. testâ acuminato-pyramidali, anfractibus longitudinaliter subobscurè plicato-costatis, costis nodulosis, aperturâ brevi; fuscâ, nodorum serie medianâ albicante.*

Hab. —— ?

Pleurotoma Cagayanensis. *Pleur. testâ fusiformi-ovatâ, spirâ acuminatâ, anfractibus supernè unicarinatis, infra tuberculato-plicatis, transversim conspicuè liratis; sinu amplo; albâ.*

Hab. Cagayan, province of Misamis, island of Mindanao, Philippines (found in sandy mud at the depth of seven fathoms); Cuming.

Pleurotoma tessellata. *Pleur. testâ pyramidali, anfractibus supernè concavis, medio confertim tuberculato-plicatis, aperturâ parvâ; albâ, maculis grandibus conspicuis rufo-fuscis tessellatâ.*

Hab. Isle of Capul, Philippines (on the reefs); Cuming.

PLEUROTOMA SEMEN. *Pleur. testâ oblongâ, spirâ mucronatâ, anfractibus lævibus, medio obliquè plicatis, aperturâ parvâ, sinu profundo; castaneo-fuscâ, plicis albidis.*
Hab. San Nicolas, island of Zebu, Philippines (under stones at low water); Cuming.

PLEUROTOMA PARIA. *Pleur. testâ oblongâ, spirâ acuminato-turritâ, anfractibus supernè concavis, infra plicato-costatis, costis angustis, subflexuosis; albâ, fasciâ pallidè aurantiâ indistinctâ cingulatâ.*
Hab. —— ?

PLEUROTOMA SCALPTA. *Pleur. testâ pyramidali-ovatâ, lævigatâ aut minutissimè reticulatâ, aperturâ brevi, sinu distincto; albâ, lineis fuscis brevibus tessellatim pictâ.*
Hab. —— ?

PLEUROTOMA FORBESII. *Pleur. testâ turritâ, anfractibus rotundatis, longitudinaliter obtusè costatis, transversim liratis, aperturâ parvâ; rufescente-fuscâ, liris saturatioribus.*
Hab. Paros, Grecian Archipelago; Forbes.
I have much pleasure in dedicating this little species to Professor Edward Forbes, whose submarine researches among the islands of the Grecian Archipelago have afforded matter of so much interest and novelty.

PLEUROTOMA SYMMETRICA. *Pleur. testâ ovatâ, spirâ breviusculâ, anfractibus supernè depressis, longitudinaliter costatis, costarum interstitiis subtilissimè elevato-striatis; lutescente, anfractuum parte superiori albâ.*
Hab. —— ?

PLEUROTOMA CORNEA. *Pleur. testâ ovatâ, spirâ acuminatâ, corneâ, subpellucidâ, concentricè tenuicostatâ; fuscescente, zonâ angustâ pallidâ cingulatâ.*
Hab. —— ?

PLEUROTOMA FOVEOLATA. *Pleur. testâ ovatâ, liris fortibus elevatis undique reticulatis, liris ad decussationem granosis; albâ.*
Hab. —— ?

PLEUROTOMA PAGODA. *Pleur. testâ pyramidali-acuminatâ, anfractibus longitudinaliter crassicostatis, transversim subtilissimè liratis, aperturâ brevi; olivaceo-fuscâ.*
Hab. —— ?

PLEUROTOMA SEMIGRANOSA. *Pleur. testâ acuminato-turritâ, anfractibus supernè concavis, medio nodoso-costatis, infra granosis, aperturâ parvâ; albidâ, fasciâ aurantiâ infernè cingulatâ.*
Hab. —— ?

PLEUROTOMA TINCTA. *Pleur. testâ oblongo-ovatâ, anfractibus rotundis, longitudinaliter crassioostatis, liris transversis fortiter clathratis, interstitiis profundis, labro incrassato, sinu lato, canali*

subrecurvo; albâ, anfractibus supra et infra aurantio-fusco fasciatim maculatis.
Hab. —— ?

PLEUROTOMA CANALICULATA. *Pleur. testâ ovato-turritâ, spiræ suturâ canaliculatâ, anfractibus striis elevatis, subtiliter clathratis, sinu amplo; albicante.*
Hab. —— ?

PLEUROTOMA FUSOIDES. *Pleur. testâ fusiformi, spirâ acuminatâ, anfractibus supernè angulatis, striis elevatis creberrimè reticulatis, labro subincrassato, sinu lato; albicante, intus fuscescente.*
Hab. Island of Mindanao, Philippines (found in sandy mud at the depth of twenty-five fathoms); Cuming.

PLEUROTOMA ALBIFUNICULATA. *Pleur. testâ oblongâ, anfractibus rotundatis, longitudinaliter crebricostatis, liris subtilibus transversis funiculatis, canali subrecurvo, sinu lato; albicante, aurantio hic illic tinctâ, liris opalo-albis, apice rosaceo.*
Hab. South Pacific.

PLEUROTOMA ALBINODATA. *Pleur. testâ ovato-turritâ, medio gibbosâ, anfractibus superne angulatis, ad angulum tuberculatis, transversim granoso-liratis; nigricante-fuscâ, tuberculis albis.*
Hab. —— ?

PLEUROTOMA SCARABÆUS. *Pleur. testâ obeso-ovatâ, spirâ brevi, apice elevato; lævigatâ, spirâ apicem versus obsoletè hexagonali; castaneo-fuscâ, anfractu ultimo zonâ subobscurâ lutescente cingulatâ, apice albo.*
Hab. Honduras; Dyson.

PLEUROTOMA DÆDALA. *Pleur. testâ subfusiformi, anfractibus longitudinaliter tenuicostatis, interstitiis transversim creberrimè elevato-striatis, labro incrassato; albidâ, fuscescente pallidissimè tinctâ.*
Hab. —— ?

PLEUROTOMA OBTUSA. *Pleur. testâ oblongâ, spirâ breviusculâ, obtusâ, anfractibus rotundis, obtuso-costatis, transversim tenuiliratis, labro incrassato, sinu lato; lutescente.*
Hab. —— ?

February 10, 1846.

R. C. Griffith, Esq., in the Chair.

The following letter was read, addressed to G. R. Waterhouse, Esq., by the Society's Corresponding Member Thomas Bridges, Esq.:—

"I am much delighted to learn that several of the little Rodents I sent from Chile previous to my departure proved new, and I thank you sincerely for the honour you have done me by affixing my name to the new Octodon. I now with pleasure give you its habitat. Many years ago I found this species inhabiting holes in sandy banks and hillocks near the borders of the river Jeno, in the province of Colchagua, nor do I remember having found it in any other locality in Chile. It is much less abundant than *O. Cumingii*, but, like that species, it feeds on herbs and dried grass. In the winter months I have observed it eats the bark of *Mimosa Cavenia*, which abounds in that part of Chile. Of this species, on my return to Chile, I shall endeavour to procure other specimens; also a skeleton and cranium for your inspection. Like *O. Cumingii*, it makes its appearance and feeds during the day, especially when the weather is cloudy.

"The *Lagotis Cuvieri* of Bennett, of which I sent beautiful specimens, were captured on the western side of the Andes, in the province of Colchagua. This animal I have also found in great abundance in Bolivia; you would be delighted to see it in its native country. It abounds in bold, rocky and steep precipices, and sometimes on the slopes amongst large stones tumbled one on the other, amongst the crevices of which it takes shelter. I have never yet seen it make caves or burrows. It is highly amusing to see it bound from one huge block to another, taking leaps equal almost to those of the squirrel; this it accomplishes from the structure of its hind legs and the assistance of its tail. On examining several females lately, I find that they only produce one or two at a birth. Their food is coarse grass. It appears that this animal has an immense mountainous range from lat. 33° to 18°, and probably is found much further north and south. I have found it often from 10,000 to 12,000 feet of elevation in Bolivia. If not mistaken, I have discovered in my rambles from Cobija to this place, a distance of 900 miles, another species of *Lagotis**. It is somewhat less in size, more compact, with a shorter tail, and the fur is of a rusty colour, especially that of the flanks and abdomen; nor is the dark line over the vertebra so well-marked as in *L. Cuvieri*. When you possess the skins you will be better able to discover if it is a distinct species.

* I did not perceive any other species of *Lagotis* beyond the *L. Cuvieri* in Mr. Bridges' collection.—G. R. W.

"The Chinchilla I have never been able to capture, although I spent a day or two in Cobija for that purpose. It is entirely a nocturnal animal, never making its appearance during the day, therefore it cannot be taken with the gun: its habits and abode are similar to the Viscacha.

"The native hunters of this little animal domesticate the Quique of Molina, which they term here Huron, the Spanish for ferret*; the Huron enters the crevices and holes made by the Chinchilla, and drives them out, when they are either killed with sticks by the hunters or taken by the dogs trained for that purpose.

"I find near the coast of Bolivia, where scarcely any vegetation exists, the Chinchilla lives on the seed-vessel of a tall long-spined species of *Cereus*, which it collects in small piles, and eats during the night. These seed-vessels contain a great deal of pulpy substance surrounding the seeds, and the exterior is covered with long hair. They are shaped like a pear, and are called by the natives *Pasas canas* (hairy figs). The *Canis fulvipes* I am persuaded does not exist in the northern provinces of Chile; had this been the case I should have taken it. Molina describes the Culpeo and the Chilla, and as I have not his work here I cannot give you his specific names; why not adopt them, as I consider them prior to those of other authors? On my return to Chile I will consult his work and send you them.

"During my journey in Bolivia I have paid every attention to the Mammalia, and only a few days ago I forwarded a box of skins to Valparaiso, requesting my friend there to forward three species which are highly interesting, and at the same time to me quite new. They are—

"1. *Kerodon*.—This animal I consider different from *K. Kingii*; it is found in the vicinity of Chuquisaca and Cochabamba in rocky places, and not uncommon in fields surrounded by stone walls, in which it takes shelter and lives. It is more solitary than *K. Kingii*, as that species I found near Mendoza in what may be termed large communities. This animal feeds during the day on grass and herbage, but, I have observed, after the dew is evaporated from the ground. The hair of this animal appears, from what I remember, to be more coarse and bristly; however, comparison will decide; I may perhaps be mistaken. Native name, 'Conejito†.'

"2. A large Rat, with short tail and strong claws‡. This curious and astonishing animal I first found a few leagues south of Potosi, at an elevation of 12,000 feet, in sandy slopes and valleys, at no great distance from water. Large patches of land are completely undermined by its workings, which are similar to those of *Schizodon fuscus*. I at first concluded that it burrowed for amusement, or the change of residence, but on deeper consideration I consider it does so in pursuit of bulbs and the roots of grass for food, like *Poëphagomys ater*. It may be seen working in the morning, throwing out the

* This is the *Galictis vittata* of Bell.—G. R. W.

† The species referred to is the *Cavia cobaia* of authors.—G. R. W.

‡ *Ctenomys Braziliensis* of De Blainville.—G R. W.

sand, and now and then turns round and protrudes its head out of the new-made burrow. It was then our only chance to shoot them, and if not killed on the spot, there is no hope of obtaining them. Only in one or two instances do I remember seeing them leave their holes to feed on the grass. I think you will find this animal distinct from all the other South American Rodents, and perhaps it will form the type of a new genus. Its native name is 'Tufo' and 'Tojo,' pronounced 'Tu-fo' and 'To-ko.'

"3. A large Mouse, with soft fur and large ears*. This charming little animal we found in the same locality as the above, inhabiting the abandoned caves of the former species. It makes its appearance in the afternoon, when the sun is nearly on the horizon, to feed on grass, and is often seen sitting on its hind legs; and it then presents its pretty white abdomen and erect ears. In this position it has the appearance of a rabbit in miniature. The natives call it 'Achohalla,' pronounced 'Ha-cho-ha-ya.'

"I have taken the *Didelphis Azaræ* with a litter of eight young ones. I have not forwarded this animal with the others; it will remain till my return to Chile; also several species of Mice and Bats.

"In ornithology I have been very successful, having obtained about 100 species differing from the birds of Chile. I have found a considerable portion of the birds figured in D'Orbigny's splendid work, and before I leave Bolivia I hope to obtain the greater part, especially as in a few days I intend leaving Cochabamba and travelling down the river Mamoré towards the frontiers of Brazil, traversing the country of the Yaracares Indians, where D'Orbigny found an immense number of novelties.

"Amongst the *Perdicaræ* I have found a beautiful species of *Endromia*, differing from *E. elegans* of D'Orbigny; also a third species of *Tinachorus*, much larger than *T. D'Orbignyanus*; and in the valley of Cochabamba and mountains in the vicinity I have of late had the good fortune to take three distinct species of *Nocthura*, all of beautifully marked plumage, and different from *N. Perdicaria* of Chile. These have given me excellent sport. Amongst many other interesting birds which I have lately taken, I have found *Serrirostrum carbonarium* and *sittoides*. My intention is, before I leave Cochabamba, to write a communication to the Zoological Society, having now the honour to be a Corresponding Member, giving them a brief idea of what I have accomplished since I arrived in this country. I have no doubt that the Earl of Derby and the Messrs. Gray will have much pleasure at the sight of the Bolivian birds when they arrive in England. I have many interesting insects, amongst which there are three species of *Nyctelia* and two or three of the genus *Phanæus*, with others which I am sure will afford you pleasure and amusement."

HESPEROMYS BOLIVIENSIS. *Hesp. pallidè ochraceus, corpore suprà fusco-penicillato, subtùs albo; pedibus albis flavo-lavatis; caudâ quoad longitudinem corpus ferè æquante, albâ, suprà flavâ: auribus permagnis, extùs rufescenti-flavis.*

* *Hesperomys Boliviensis*, a new species hereafter described.—G. R. W.

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	5	3
——— *caudæ*	3	5
——— *tarsi digitorumque*	1	1½
——— *auris*	0	9½

Hab. Bolivia, near Potosi.

The most striking features of this species are the large size of its ears, combined with its delicate ochre-yellow colouring. It is apparently a stout-bodied animal, and has long and soft fur, which on all parts of the body is of a deep slate-grey colour next the skin; on the under parts each hair has the outer half white; on the sides of the body the visible portions of the hairs are ochreous, obscurely tinted with rufous on the rump: the hairs on the back are similarly coloured, but they are brown at the point, and many of them are blackish. The feet are white, but slightly suffused with yellowish; the tail is well-clothed for a mouse, white beneath, and of a pale yellow colour above; the eyes are margined with brown; the ears are clothed with small pale yellow hairs internally, and the hairs on the outer surface, which are much longer, are of a rusty yellow hue. The hairs of the moustaches are numerous and very long, some of them white and some black. The incisor teeth, which are narrow in proportion to the animal, are of a very pale orange colour. The fore-feet are small; the tarsi moderate.

The *Hesperomys Boliviensis*, in the large size of its ears, must approach the *Mus auritus* of Desmarest; but judging from the description of that animal, it should differ in being of a larger size, in having the tarsi shorter in proportion, and its colouring must be very dissimilar, the *M. auritus* being described as of a grey hue.—G. W.

February 24, 1846.

George Gulliver, Esq., F.R.S., in the Chair.

The following Note on the Spermatozoa of the Polar Bear, by George Gulliver, Esq., F.R.S., was read:—

The question of the true nature of these curious bodies is as interesting as it is obscure. Whether they be independent animalcules or merely free and floating cilia has never been clearly proved.

Professor Valentin*, indeed, described an amount of organization in the spermatozoa of a Bear, quite sufficient, if confirmed, to prove that they are really distinct beings. Therefore I took an opportunity of obtaining them for examination from the Polar Bear which died this morning in the Society's menagerie. The animal was a very large adult, in good condition; his testes well-developed, containing in the seminal tubes plenty of cells and immature spermatozoa, and an abundance of them perfectly formed in the vas deferens. These were carefully examined. They presented none of the marks of mouth, anus and internal vesicles depicted by Professor Valentin. In short, the spermatozoa of the Polar Bear were similar in all respects to those of numerous other Mammalia, as may be seen by comparing my drawings, now exhibited to the Society, of the spermatozoa of the following animals, viz. the Polar Bear (*Ursus maritimus*, Linn.), the Stoat (*Mustela Erminea*, Linn.), the Indian Badger (*Arctonyx collaris*, F. Cuv.), the Dromedary (*Camelus Dromedarius*, Linn.), and the Camel (*Camelus Bactrianus*, Auct.). I gave a notice of the spermatozoa of the two last animals in the Proc. of this Society, July 26, 1842, p. 101, and April 11, 1843, p. 50.

A paper by Edward Fry was then read:—

"On the Osteology of the Active Gibbon (*Hylobates agilis*)."

I have never met with any detailed account of the osteology of any species of the genus *Hylobates*. Professor Owen's memoir on that of the Orang Utan and Chimpanzee seems to make one desirable, for the sake of comparison, as the Gibbons are the next group of *Simiadæ* to the Orangs. Their skeleton too is highly interesting, as exhibiting a striking adaptation to progression amongst the branches of trees, well-fitting the animal to be a walker amongst woods, a *Hylobates*.

The individual, whose skeleton I am about to describe, was a female, which lived for some years in the Zoological Gardens at Bristol, having been brought thither from Macao, where she had been kept in confinement. Of two young ones which were taken with their mother in the forests of Malacca, she alone attained maturity. She was pro-

* Wagner's Physiology, tr. by Dr. Willis, p. 228; 8vo, Lond. 1844.

bably nine or ten years of age at the time of her death. Of her agility and her cry I shall say nothing; much has already been written on these subjects, and no account of mine could give any adequate impression of her wonderful manners.

This individual is the one which was exhibited in London in 1840, and of which mention is made in Martin's 'Natural History of Quadrupeds,' Part 8.

Section I.—Of the Skull.

The cranium of the *Hylobates agilis* is elongate and ovate in form, much-contracted behind the orbits, which are very projecting and deep and surmounted by very elevated supraciliary ridges. The muzzle is rounded and broad, so that the face, although considerably prominent, has not attained the lengthened shape of the Baboons or of the adult Orang Utan. The forehead, which is narrow, is but slightly arched above the orbits, so that the whole of the cranium is behind the face.

A slightly elevated ridge of bone, arising from the supraorbital ridges, which becomes contracted during its passage over the coronal aspect of the skull, and again expands towards the occiput, marks the boundary on either side of the temporal muscles. This elevated medial portion is smooth, whilst the lateral portions of the skull are roughened by muscular attachments. This development is similar to that of the Chimpanzee, whilst in the Orang Utan the sagittal and temporal crests are elevated to an extraordinary extent.

The supraorbital ridges, we have before remarked, are much-developed. Such is the case in the Chimpanzee, where however they form a junction across the face, which does not take place in the Active Gibbon. The orbits have a very prominent margin, are very large and deep, and are much swelled out externally, so that their outer portion "projects very boldly from the cranium." Sir Thomas Stamford Raffles says of the Siamang, "The orbits of the eyes are circular and remarkably prominent," Linn. Trans. vol. xiii. p. 242. Such too is the character of the skull of the adult Hoolock figured by Dr. Harlan in the Transactions of the American Philosophical Society, vol. iv. New Series, p. 52.

The nasal bones make a slight elevation, thus resembling Man more than the Orang Utan or even the Chimpanzee. The osseous opening of the nose is wide and rather large. The figure of the face viewed in front, from between the orbits to the dental edge, resembles a wedge whose point is directed downwards. This form is contrary to that of the Baboons, where the wedge is inverted. The infraorbital canal opens by a single hole, as in Man and the Chimpanzee. This foramen is smaller in the Gibbon than in those animals.

The outward curvature of the zygomatic arch is not great; it is placed far more posteriorly than in Man, in consequence of the lengthening of the facial portion of the skull.

The skull of this Gibbon is anchylosed, externally at least, into one piece. Prof. Owen tells us that the cranial sutures are obliterated in the adult Orang Utan, Syndactylous Ape, and frequently

in the Baboons and other Quadrumana. I have observed it in *Pithecia Satanus*, an American species. It sometimes occurs in the adult human cranium.

The lower jaw is rather lengthened in figure, decidedly more so than in Man, in consequence of the production of the muzzle. It is shallowest just below the termination of the molar series, deepening towards the symphysis, which is not very retreating, so that the Gibbon has a pretty good chin for a monkey. In this respect it appears to approach Man more nearly than the higher Orangs. The lower jaw of Man is more uniform in its depth than that of this Gibbon: its angle too is not quite so much rounded; the external edges of the ascending and horizontal branches do not form quite so obtuse an angle at their meeting.

The question may be asked, What are the effects of age in altering the form of the skull in the Gibbons? In answer I will remark, first, that the muzzle is elongated and the cranium thrown in a more backward position, in consequence of the necessity for lengthening the dental edge to receive the second or permanent series of teeth. This will be evident by a comparison of the skulls of the young White-cheeked and Hoolock Gibbons, figured in Martin's Nat. Hist. Quad., Part 8, with that of the adult Agile Gibbon in the Bristol Institution (the subject of this paper) and with Dr. Harlan's plate of that of the adult Hoolock, Trans. Amer. Phil. Soc., *ubi supra*. The latter comparison is very satisfactory on this point, as the specimens compared are of the same species. A corresponding elongation of the facial parts takes place in the Orangs, as demonstrated by Prof. Owen, Zool. Trans. vol. i. or Zool. Proc. 1835, p. 30. A similar change is also observable in the human species; the facial angle of the infant decreases with age until the second teeth are cut. Secondly, with increasing age another change takes place in the greater prominence of the supraciliary ridges and the margin of the orbit. I appeal again to the illustrations of Martin and Harlan, and to the original sketch of the Agile Gibbon. A similar development of the cranial ridges takes place in the Orang Utan and Chimpanzee with age; in the former, in the temporal and sagittal crests; in the latter, in the orbital margin. Thirdly, in the anchylosis of the bones of the cranium and the face. This would appear to have taken place in the skull of the Hoolock figured by the late Dr. Richard Harlan (*ubi supra*), whilst in the immature one figured by Martin (*ubi supra*) the sutures are represented. This change is observed to take place in the adult Orang, but not in the Chimpanzee. Fourthly, it appears probable, from a comparison of the before-mentioned materials, that the infra-orbital foramen, and the foramen which gives exit to the dental blood-vessel and nerve in the lower jaw, become smaller by age.

From these observations it will be apparent that the skull of the Gibbons, like that of the Orangs, is far more anthropoid in youth than in mature age. The prolongation of the muzzle, the retrogression of the cranium, the smallness of the facial angle, the development of the orbital ridges, the anchylosis of the bones, and the small-

ness of the foramina, all distance the aged more than the immature Gibbon from the human race.

Compared with the human skull, the head of this Gibbon is distinguished by its lengthened ovate figure; its narrowness, especially behind the orbits; by the large size and inflated parietes of the orbits; by the want of vertical elevation of the forehead, and the consequent position of the brain behind, not above the face; by the great elevation of the supraorbital ridges; by the development of the muzzle, necessitating the backward position of the zygomatic arches and the elongation of the palate; by the small proportional size of the infraorbital foramen; by the obliquity of the occipital plane, and by the large size of the canine teeth; by the elongation of the lower jaws, in consequence of the length of the muzzle and palate; by the increased depth of the symphysis, and by the small size of the foramen which gives exit to the blood-vessel nourishing the teeth and the accompanying nerve.

This skull agrees with that of the Chimpanzee in its smallness proportionally to the body, in its generally elongated form, in its anterior contraction, in the marks of the attachments of the temporal muscles, in the large supraorbital ridges, in the obliquity of the plane of the foramen magnum, and in the slight arch of the nasal bones.

It differs from that of the Chimpanzee in the supraorbital ridges not uniting, in the obliteration of the sutures, in the smaller size of the infraorbital foramen and of the foramen of the dental blood-vessel. The lower jaw is proportionally shallower. The cranium of the young Chimpanzee is far broader, more arched and less anteriorly compressed, and therefore far more anthropoid. These characters however degenerate with age.

It differs yet more from the form of skull exhibited by the adult Orang Utan, where the strongly developed cranial ridges and widely expanded zygomatic arches give the skull a carnivorous aspect. These peculiarities we have seen to be absent in the Gibbon. The flatness of the bones of the nose of this Ape is an additional distinction. On the other hand, it agrees with the Orang in the obliteration of the cranial sutures of the adult.

In the large development of the supraciliary ridges this skull reminds us of the Baboons, which present however a more degraded form, and may be distinguished by the greater narrowness of the cranium, by the less circular form of the orbits, by the greater prolongation of the muzzle and the greater space between the zygomatic arch and the skull.

The dentition of the Gibbon claims no especial notice; the incisors and molars are moderate in size, whilst the canines are large, their roots apparently reaching nearly to the internal corner of the orbits.

Section II.—Of the Trunk.

The vertebral formula of the Agile Gibbon is—cervical, 7; dorsal, 13; lumbar, 5; sacral, 4; coccygeal, 4. The comparison of these

numbers with those of some of its congeners and near allies will be exhibited by the following table:—

Name of Animal.	Cervical.	Dorsal.	Lumbar.	Sacral.	Coccygeal.	Total.
Man	7	12	5	5	4	33
Chimpanzee	7	13	4	5	4	33
Orang Utan	7	12	4	5	3	31
Hylobates concolor.	7	14	5	5	5	36
Hylobates lar	7	12	6	3	3	31
Hylobates agilis ...	7	13	5	4	4	33

Of the cervical vertebræ I need only remark, that the transverse processes of the atlas are produced long and narrow, more so than in Man. The first dorsal vertebra is the smallest, after which they gradually increase in size. The transverse processes of the lumbar vertebræ are less developed than in Man, and are more uniform in size. It will be noticed that whilst the lumbar vertebræ of the Chimpanzee and Orang Utan are four, two of the Gibbons have five and one has six; in the extent of this region therefore they approach Man. The sacral vertebræ are perfectly anchylosed together, but not to the coccygeal, and form about their middle an angle, the lower part being curved backwards. The upper portion thus remains in a line with the vertebral column, and part only is thrown backwards instead of the whole, as in Man. The first pair of foramina are almost obliterated, and are therefore not so large as in Man and the Chimpanzee; the three following are persistent. As in the Orangs, the sacrum is narrower than in the human skeleton. The weakness of these parts indicates the less amount of capability of assuming the erect posture than is granted to Man. The Gibbons are especially fitted for arboreal progression; and although by the assistance of their lengthened fore extremities, touching the ground on either side, and as it were acting as crutches, they are perhaps more at home in the erect posture on level surfaces than either the Chimpanzee or Orang Utan, yet their movements are awkward and constrained. The Gibbons are the only Mammals which can assume the erect posture whilst they walk on all four extremities.

The thorax, which is formed by seven true and six false ribs, is larger and more conical in form than in Man. The great activity of the Gibbons requires large respiratory organs; hence we find the thorax proportionally large (see Prof. Owen on Orangs, *ubi supra*); at the same time it affords increased attachments to the strong pectoral muscles required by the lengthened arms. One contrivance thus answers two ends.

The last three ribs are unattached by cartilage to the sternum, which consists of five pieces, whereof the last is free. In the number of its component pieces the sternum of the Active Gibbon agrees with Man and the Chimpanzee, and differs from the Orang Utan, where it is formed of seven or eight small pieces arranged in a double row. The manubrium differs slightly from the human in being proportionally broader.

Compared with the ribs of the Chimpanzee, those of the Active Gibbon are slight in form: compared with those of a Baboon, they are strong.

A reference to the dorsal column of the table of vertebræ given above will show that the number of ribs varies considerably in the genus *Hylobates*.

Section III.—Of the Fore Extremities.

The clavicles, which from their great length throw the scapulæ far backwards, and give great breadth to the shoulders, are flattened horizontally, have but little marks of tendinous attachment, and present neither the double curvature of Man nor the straightness of the Orang Utan, but a simple gentle curvature outwards.

The scapulæ are of a more lengthened shape than in the human subject, from which they also differ in having the aspect of the glenoid cavity far less laterally and more upwardly directed, in the upper edge of the bone rather descending than ascending from this cavity, in the convexity instead of concavity of the humeral edge, and the far greater acuteness of the inferior angle.

The peculiarities to be remarked in the humerus are its extraordinary length, reaching to just above the head of the femur, its slightness of form, and the general weakness of its elevations. The tubercles at the superior head are very small. Its twist occurs about one-third from the upper extremity of the bone, as in Man. The external apophysis can scarcely be said to exist; the internal is present.

The fore-arm is remarkable for its length (which is yet more extraordinary than that of the arm), for the slenderness of its form, and for the extent of the interosseous space formed by the great outward curvature of the radius: by this last character the Gibbon is distanced from Man, but approximated to the Orangs. The greatest distance of the radius from the ulna occurs about one-third of the length of the fore-arm from the superior articulation; not near the inferior head, as in the human skeleton. The olecranon of the ulna appears neither so broad nor so strong as in Man.

In this specimen the fore-arm is two inches longer than the arm. In the adult Hoolock the difference is about 1⅓ inch; in the *Hylobates concolor* about 2½ inches. These proportions correspond with those of the Orangs, but are at variance with the human, where the arm is about two inches longer than the fore-arm. Now it is remarkable that in the immature Gibbons the proportion of these parts has been found to resemble the human (see Dr. Harlan, *ubi supra*). Not only then are the skulls of these monkeys more anthropoid in youth than maturity, but likewise the proportions of the anterior extremities. Retrogression with advancing age from a superior to an inferior type of organization is not so common in nature as the converse.

The carpus of the Agile Gibbon appears to contain the same eight bones as in Man; not eleven, as Daubenton states that the *Hylobates*

lar possesses (Martin, *ubi supra*). The whole hand is remarkable for its slenderness and length, by which it is beautifully adapted for grasping the boughs of trees or any such objects: the fingers maintain similar proportions, one to another, to those of Man. The thumb, longer than in the Chimpanzee, where it does not quite equal in length the metacarpal bone of the first finger, is slender in form.

So extraordinary is the length of the fore extremity, that the humerus reaches to nearly the same part of the trunk as the wrist in Man, and that the fingers really rest on the ground when the animal assumes the erect posture. The length of the fore-arm of this skeleton, whose total height is only about two feet, positively exceeds in length that of the adult human subject, being eleven inches long.

Never have I seen a skeleton which better illustrates the law of animal mechanics, that rapidity of movement depends on the elongation of the short arm of the lever (which every bone represents) in proportion to the long arm of the same; or (otherwise expressed) on the extent of the distance between the fulcrum and weight in proportion to the distance between the fulcrum and the power.

As respects the proportions of the fore-limbs, the Orang Utan approaches the Gibbons, and retrogresses from Man more than the Chimpanzee, since in the former the arms reach to the heel, in the latter to about the knee-joint.

Section IV.—Of the Hind Extremities.

The pelvis presents us with a type far degraded from the Simanous. The hips are narrow; the iliac bones long and flat, and their superior margins do not present an arc of a circle, as in Man, and indeed to a certain extent in the Chimpanzee. The ischiatic bones, instead of retreating far backward from the symphysis of the pubes, are nearly on a plane with the iliac wings; their inferior margins are not circular, as in Man, but present three sides of a lengthened parallelogram. The symphysis of the pubic bones resembles that of Man more than does that of the young Chimpanzee.

The bones of the lower extremities are characterized, as those of the pectoral limbs, by the slenderness of their form and the slightness of their elevations.

The trochanters of the femur are small; the *linea aspera* absent. The ligamentum teres appears to have been present, thus agreeing with Man and all the *Simiadæ*, excepting the Orang Utan.

The tibia and fibula have rather a larger interosseous space than in Man, consequent on the bowing of the fibula. This space is large in the Orang Utan (Owen, *ubi supra*).

The relative proportions of the leg and fore-leg are similar to the human.

Let me here introduce a remark made on this animal by Yarrell, viz. that both the upper and lower extremities are incapable of the same extension as in Man, owing to the strong facial expansion of the flexor tendons passing before the elbows and behind the knee-joints to be attached to the upper halves of their respective bones

below these parts (Notes on Dissection of Active Gibbon, Zoological Journal, vol. v. p. 14).

The foot is remarkable for the smallness of the os calcis, a character common to the Orangs and the lower Monkeys, and which, giving less basal surface to the foot, indicates less power of supporting the frame in the erect posture. The hind-foot is formed for grasping the branches of trees and not for walking on the ground. The metatarsal bones decrease in strength (as in the hand) from the first towards the little finger. The thumb is strongly formed, especially its metatarsal bone. The ungueal phalanges are wanting in the second and third finger, and the ungueal and penultimate in the little finger of the only hind extremity mounted on the skeleton. These defects in the hind-foot arise from the animal having been affected some time previous to her death with a morbid state of constitution (supposed to arise from confinement), which caused her to gnaw off the ends of some of her fingers. The foot is thrown less on the external edge than in the lower Quadrumana.

I am fully conscious of the imperfection of this account of the osteology of the Active Gibbon, yet trust that I have called attention to some points in which the organization of the skeleton is beautifully adapted to the habits of the creature. No part of the studies of a naturalist is more interesting or instructive than thus to trace, however imperfectly, the hand of an all-wise Creator in the works of nature. EDW. FRY.

The next paper contained "Descriptions of eleven new species of Australian Birds," by John Gould, Esq.:—

ATHENE MARMORATA. *Ath. omni superiore corpore, alis, caudâque, saturatè fuscis, nuchâ autem, alarum tectricibus, et scapularibus, obscurè albo maculatis; pogoniis internis primariorum ad basin et rectricum lateralium fasciis stramineis, ad extremam pogoniam albicantibus, ornatis; facie et mento albidis; corpore inferiore saturatè fusco, albo et arenaceo colore maculato.*

All the upper surface, wings and tail dark brown, obscurely spotted with white round the back of the neck, on the wing-coverts and scapularies; inner webs of the primaries at their base, and the inner webs of the lateral tail-feathers crossed by bands, which are buff next the shaft and white towards the extremity of the webs; face and chin whitish; under surface dark brown, blotched with white and sandy brown; legs and thighs fawn-colour; bill horn-colour; feet yellow.

Total length, 14 inches; bill, $1\frac{1}{8}$; wing, $9\frac{1}{2}$; tail, 6; tarsi, 2.

Hab. South Australia.

Remark.—Nearly allied to *Athene maculata*, but much exceeding that species in size.

ATHENE RUFA. *Ath. disco faciali saturatè fusco; omni corpore, suprà saturatè fusco, infrà arenaceo-rufo; multis autem lineis rufo-fuscis transversim fasciato.*

Facial disc dark brown; all the upper surface dark brown, crossed by numerous narrow bars of reddish brown, the tints becoming paler

and the barrings larger and more distinct on the lower part of the body, wings and tail; all the under surface sandy red, crossed by numerous bars of reddish brown; the feathers of the throat with a line of brown down the centre; vent, legs and thighs of a paler tint, with the bars more numerous, but not so decided; bill horn-colour; toes yellowish, slightly clothed with feathers.

Total length, 20 inches; bill, $1\frac{3}{4}$; wing, $13\frac{1}{2}$; tail, $9\frac{1}{2}$; tarsi, $2\frac{1}{4}$.

Hab. Port Essington.

Remark.—A very powerful species, nearly allied to *Athene strenua*.

Alcyone pulchra. *Alc. omni corpore superiore splendidè purpurascente-cyaneo; alis fusco-nigris; loris, cristulâ post aurem, et gulâ, stramineis; lateribus pectoris purpurascente-cyaneis, in vini colorem ad latera mergentibus.*

All the upper surface shining purplish blue; wings brownish black; lores, tuft behind the ear and throat buff; under surface deep ferruginous orange; sides of the chest fine purplish blue, passing into a rich vinous tint on the flanks; irides and bill black; feet orange.

Total length, 6 inches; bill, 2; wing, $2\frac{7}{8}$; tail, $1\frac{1}{2}$; tarsi, $\frac{3}{8}$.

Hab. Port Essington.

Remark.—This is by far the finest of the Australian Alcyones, and is at once distinguished by the rich blue of the upper surface and the beautiful vinous colouring of the flanks.

Alcyone Diemenensis. *Alc. omni superiore corpore intensè cyaneo, ad uropygium et tectrices caudæ superiores splendidius; alis nigris cyaneo lavatis; gulâ stramineâ; vertice nigro indistinctè fasciato.*

All the upper surface deep blue, becoming more vivid on the rump and upper tail-coverts; wings black, washed with blue; throat buff; under surface of the body and wings ferruginous orange; on each side of the chest a patch of bluish black; lores and a small patch behind the ears buff; crown of the head indistinctly barred with black; irides and bill black; feet orange.

Total length, $6\frac{1}{2}$ inches; bill, 2; wing, $3\frac{1}{8}$; tail, $1\frac{3}{4}$; tarsi, $\frac{1}{2}$.

Hab. Van Diemen's Land.

Remark.—Rather more robust than *Alcyone azurea* or *A. pulchra*, and differing from both in the blue of the upper surface, which is less brilliant and of a slight greenish tinge.

Eöpsaltria leucogaster. *Eöps. parvo maculo triangulari ante oculum nigro; vertice, corpore superiore, alis caudâque, saturatè griseis; corpore inferiore albo.*

Immediately before the eye a small triangular-shaped spot of black; above the eye a faint line of greyish white; crown of the head, all the upper surface, wings and tail dark slate-grey; the lateral tail-feathers largely tipped with white on their inner webs; all the under surface white; irides dark brown; bill and feet black.

Total length, $5\frac{3}{4}$ inches; bill, $\frac{11}{16}$; wing, 3; tail, $2\frac{3}{4}$; tarsi, $\frac{7}{8}$.

Hab. Western Australia.

The sexes are alike in plumage.

Strepera arguta. *Strep. toto corpore nigro; remigum apicibus*

fuscis; crisso, et pogoniis internis primariorum secundariorumque ad basin et tertiæ partis apicalis rectricum albis.

All the plumage black, becoming browner on the tips of the wing-feathers; base of the inner webs of the primaries and secondaries, the under tail-coverts and the apical third of the inner webs of the tail-feathers white; irides yellow; bill and feet black.

Total length, 21 inches; bill, 2; wing, 11¾; tail, 10; tarsi, 2¾.

Hab. Van Diemen's Land.

Remark.—This is the largest species of the genus I have yet seen.

STREPERA PLUMBEA. *Strep. corpore superiore plumbeo-griseo, ad frontem loresque multo saturatius; alis nigris; secundariorum marginibus griseis, apicibus, et crisso, albis.*

All the upper surface leaden-grey, becoming much darker on the forehead and lores; wings black; secondaries margined with grey and tipped with white; basal half of the inner webs of the primaries white, of the outer webs grey; the remainder of their length black, slightly tipped with white; tail black, margined with grey and largely tipped with white; all the under surface greyish-brown; under tail-coverts white; irides, bill and feet black.

Total length, 18 inches; bill, 2¾; wing, 11½; tail, 9; tarsi, 2½.

Hab. Western Australia.

STREPERA MELANOPTERA. *Strep. corpore superiore caudâque nigris; corpore inferiore fusco-nigro, abdomine griseo tincto; crisso rectricibusque, duabus intermediis exceptis, albis.*

All the upper surface, wings and tail black; under surface brownish-black, tinged with grey on the abdomen; under tail-coverts and tips of all but the two centre tail-feathers white; irides yellow; bill and feet black.

Total length, 19 inches; bill, 2; wing, 11; tail, 9; tarsi, 2⅝.

Hab. South Australia.

Remark.—Distinguished from all other species by the total absence of any white mark on the wings.

GALLINULA TENEBROSA. *Gal. griseo-nigra; dorso scapularibusque nigris; crisso medio nigro ad latera albo.*

General plumage greyish-black, with the exception of the back and scapularies, which are deep brown, and the primaries and tail, which are nearly pure black; under tail-coverts black in the centre and pure white on the sides; frontal plate orange; base of the bill blood-red; tip greenish yellow; above the knee a garter of yellow and scarlet; joints of the legs and feet green; under surface of the legs and feet olive; the sides of the tarsi and frontal plates of the toes yellow; frontal plates of the tarsi yellow; those nearest the knee stained with scarlet; irides olive.

Total length, 15 inches; bill, 1¼; wing, 8; tail, 3; tarsi, 2½.

Hab. South Australia.

Remark.—The above is the description of a female; the male is supposed to be larger in size, and to differ in being of a paler hue beneath, and in having the whole of the upper surface brown.

SYLOCHELIDON STRENUUS. *Syl. fronte vertice et nuchâ nitidè nigris; dorso alis caudâque pallidè cinereo-griseis; reliquis plumis albis.*

Forehead, crown and nape deep glossy black; back, wings and tail pale ashy grey, becoming lighter on the tail and deepening into dark grey on the primaries, the shafts of which are white; remainder of the plumage pure white; irides black; bill scarlet, stained with yellow on the sides and tip, and with greenish yellow near the extremity.

Total length, 20½ inches; bill, 4; wing, 16½; tail, 6½; tarsi, 2.

Hab. Southern coasts of Australia.

Remark.—The above is the description of the plumage of the breeding season; at other times the head instead of being wholly black is mottled with black and white.

SULA PERSONATA. *Sul. alba; tectricibus alarum majoribus, secundariis, tertialibus, rectricibus lateralibus, et rectricum intermediarum apicibus, intensè fuscis.*

The whole of the plumage pure white, with the exception of the greater wing-coverts, primaries, secondaries, tertiaries, the tips of the two central and the whole of the lateral tail-feathers, which are of a rich chocolate-brown; irides yellow; naked skin of the face and chin in dead specimen dull bluish black; legs greenish blue.

Total length, 29 inches; bill, 5; wing, 16½; tail, 8½; tarsi, 2½.

Hab. North and north-east coasts of Australia.

Remark.—A very robust and powerful species.

March 10, 1846.

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

The following extract was read from a letter dated Madeira, Feb. 7, 1846, from the Society's Corresponding Member, the Rev. R. T. Lowe:—

"I have the pleasure of sending the Society a fine example of the rare fish *Lichia Vadigo*, Cuv. and Val., being the first that has occurred here, and also considered unfrequent in the Mediterranean."

A paper was then read entitled "Descriptions of two new species of *Cypræa*," by Lovell Reeve:—

CYPRÆA GASKOINII. *Cypr. testâ subabbreviato-ovatâ, solidiusculâ, lateribus incrassatis, marginatis, dentibus fortiusculis; dorso fulvo-stramineo, ocellis albidis, fusco-annulatis, parviusculis, sparsim ornato, lateribus castaneo-punctatis, basi albâ.*

Hab. ——?

This interesting species, of which I have seen two specimens, one in the British Museum and one in the collection of J. S. Gaskoin, Esq., partakes of the characters of the *Cypræa Cumingii* and *esontropia*; the back being covered with the same kind of small clear ringed eyes as the *C. Cumingii*. I dedicate it with a great deal of pleasure to the gentleman above named, to whom I am much indebted for the zeal with which he has worked out the small and less attractive species of the genus.

CYPRÆA PULICARIA. *Cypr. testâ subcylindraceo-oblongâ, anticè subdeclivi, latere dextro marginato, leviter contracto, aperturâ angustâ, dentibus minutis; pellucido-albâ, vel luteâ, lateribus dorsoque punctis rubido-fuscis subconspicuis aspersis.*

Hab. ——?

Allied to *C. piperata*, but perfectly distinct, though it has been hitherto mingled with that species in collections; it is of a smaller and more cylindrically oblong form, and is not banded, whilst the dots are more conspicuous.

The following paper was also read:—

"Descriptions of three new species of *Cypræa*," by J. S. Gaskoin, Esq.

CYPRÆA PELLUCIDULA. *Cyp. testâ ovatâ, nitidâ, albicante subhyalinâ; costellis continuis ad utrumque latus aperturæ terminatis; dentibus æqualibus, minimis, numerosisque; sulco columellari profundo, lato; lineâ dorsali nullâ; extremitatibus valdè productis et obtusis; aperturâ rectâ, posticè subsinuatâ.*

Semipellucid Cowry.—Shell ovate, of a beautiful semipellucid white colour, shining; the ribs—anterior, posterior and dorsal—terminate in teeth on both sides and ends of the aperture, and traverse the columellar groove to its inner edge; a few ribs do not continue over the dorsum; the teeth, even, fine, and numerous, about thirty on the lip; columellar groove, deep and broad; base round; margins wide; no dorsal impression; extremities much produced, and obtuse; aperture straight, except a slight curve at its posterior extremity. Size $\frac{18}{100}$ths of an inch.

Hab. South Pacific.

Cab. Gaskoin, &c.

Differs from *exigua* of Gray, the *tremeza* of Duclos, in being less gibbous, ribs more numerous, finer, more even and regular, and but two or three terminate on the sides of the shell, none on the dorsum; they pass continuously over the shell from one side of the aperture to the other; shell perfectly colourless, and has no dorsal line or impression.

Cypræa Pisum. *Cyp. testâ spheroidali, pallescente; costellis prominentibus, ex aperturâ ad lineam dorsalem decurrentibus, et in lineam attenuatam terminantibus; dentibus prominentibus; sulco columellari lato; aperturâ latiusculâ posticè flexuosâ; basi rotundatâ; margine externo incrassato, supra extremitates extenso; extremitatibus crassis; lineâ dorsali profundâ, ex extremitatibus posticis ad anticam testæ partem continuâ.*

Pea Cowry.—Shell spheroidal, of a very light fawn colour; ribs large and prominent; nearly every rib extends from the aperture and terminates generally, tapering to a point, at the dorsal depression; mostly the terminations on one side pass between those of the other, especially on the anterior half of the shell; each third or fourth rib, amounting to about seven, ends on the lip at the base of the shell; all the other ribs on both sides form, by continuance, the teeth, which are strong and prominent; about twenty-three on the columellar side of the aperture, which extend across the columellar groove and serrate its inner edge; those on the outer side or lip about twenty-one in number; columellar groove broad and deep; aperture rather wide, curved, particularly at the posterior portion; base round; margin on the outer side very thick, extending over the beaks; none on the columellar side; extremities or beaks obtuse, thick, and slightly produced; dorsal depression deep, extending from between the posterior extremities to the anterior end of the shell, being more deeply impressed beside the apex.

Long. $\frac{45}{100}$ths of an inch.

Hab. East Indies.

Specimen unicum. Cab. Gaskoin.

The characters of this shell are so distinctive that it bears no relation to any yet described *Cypræa*; it is nearest in form to *Cypræa formosa* of Gaskoin.

Cypræa Pulla. *Cypr. testâ ovatâ, nitidâ, fusco-rubescente, costellis dentibusque concoloribus; costellis usque ad lineam dorsalem*

ut plurimum continuis, et ad margines aperturæ terminantibus; sulco columellari albido, margine interno dentibus serrato; aperturâ angustâ; labio externo extùs incrassato; extremitatibus paululum productis.

Reddish-brown Cowry.—Shell ovate, shining, of a dark reddish-brown colour; ribs the colour of the shell, mostly terminate at the dorsal depression; a very few on the sides of the shell, thence extending to form teeth on both sides of the aperture; on the outer side or lip about eighteen, and about sixteen on the columellar side; columellar groove whitish, the teeth traverse it and serrate its entire inner edge; aperture narrow, very slightly spiral; base round; margin thick, none on the columellar side; extremities slightly produced.

Differs from the *fusca* of Gray, in the ribs of the base, and the teeth not being white, but of the same colour as the shell; in the ribs being much finer, in having a dorsal line or impression, and in being of a deeper and redder colour.

Long. $\frac{25}{100}$ths of an inch.

Hab. ——?

Cab. Gaskoin, &c.

March 24, 1846.

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

The first communication was the following Note from Mr. Gulliver, on the size of the Blood-Corpuscles of Birds, with measurements by Dr. Davy of the Blood-Corpuscles of some Fishes and of a Humming Bird.

While my friend Dr. Davy was employed by our Government on a special medical service at Constantinople, and afterwards as principal medical officer at Barbadoes, he communicated to me the measurements, appended hereto, of the blood-corpuscles of some animals.

Medical officers residing in different parts of the world might render a very acceptable service to physiology, by giving an account of the blood-corpuscles not yet examined of various animals; and doubtless some new or otherwise interesting facts would thus be obtained, especially among the larger *Cetacea*, the smallest birds, the cartilaginous fishes, reptiles and amphibia.

Dr. Davy shows that some fœtal sharks, six or seven inches long, have oval corpuscles like those of the adult; and he confirms Professor Wagner's observation as to their large size in this family.

Although, in a strictly natural family of Mammalia, as the Rodents or the Ruminants, there is a relation between the size of the corpuscles and that of the animal, there is no such relation in Mammalia of different orders. But in the entire class of Birds the law for the size of the corpuscles is the same as in a single family of Mammalia; at least among birds no example has yet been found of comparatively large corpuscles in the smallest species and of more minute corpuscles in the largest species. I have elsewhere* remarked the necessity of examining the blood of the Humming Birds with reference to this view; which is now supported by Dr. Davy's observation, showing that the corpuscles of a bird of this kind are as small as those hitherto examined of any bird, as may be seen by reference to the copious tables of my measurements of the blood-corpuscles of Vertebrata, in the 'Proceedings of the Zoological Society,' October 14, 1846. The long diameter of the corpuscles of *Rallus Philippinensis* is 1-2097th of an inch, and not 1-2997th, as there printed. In my observations in this class, those great birds the Ostrich and the Javanese Cassowary were found to have the largest blood-corpuscles; while the smallest corpuscles occurred in the little insectivorous and granivorous birds. The average length of the corpuscles of the Cassowary was 1-1455th and their breadth 1-2800th of an inch.

These remarks all refer to the red corpuscles; and the measurements of them in the following notes by Dr. Davy are, like all my measurements, in vulgar fractions of an English inch.—G. G.

* Gerber's Anatomy, Appendix, p. 26. Lond. 1842.

Torpedo oculata.—Blood from heart: long diameter of the corpuscles about 1-800; short diameter 1-1000. Some further particulars have been given respecting them in a paper deposited in the archives of the Royal Society.

Spigota (*Perca marina*).—Blood from vessels of gills: long diameter of corpuscles from 1-4000 to 1-3750; short diameter 1-4000.

Pylamedes (*Thynnus Pylamedes*).—Long diameter of corpuscles about 1-2000; short diameter about 1-3000.

A small species of Mackerel, corpuscles 1-2286 by 1-4000. Taken from the heart; oil particles four times as large were mixed with the red particles.

A small fish; species of it I have not yet made out; corpuscles about 1-4000 to 1-3000, by about 1-6000.

Another species I have not yet made out; particles about 1-3000 by 1-4000.

Another small species, not made out; particles, most of them circular, about 1-4000; a few elliptical.

Sword-fish.—Particles, long diameter, from 1-2000 to 1-3200; short diameter, 1-3200 to 1-5333.

Red Mullet.—Many particles circular, about 1-4000; some elliptical, about 1-2286 by 1-3200.

John Dory.—Corpuscles 1-1777 by 1-2666; some nearly circular.

A species of large Mackerel; corpuscles about 1-2000 to 1-2666, by about 1-4000.

Small spotted Dog-fish.—Corpuscles about 1-1333 by 1-2000.

Sturgeon.—Corpuscles about 1-1600 by 1-2666.

Squalus acanthias.—Corpuscles about 1-1231 by 1-1777; nucleus elliptical.

Brown spotted Dog-fish.—Corpuscles from 1-1000 to 1-1143, by 1-1600 to 1-1455.

Tunny (*Thynnus communis*).—Corpuscles 1-1600 by 1-2666.

Eel, species I have not made out; corpuscles about 1-2000 by 1-3200; a few circular.

A species of small fish I have not yet made out; corpuscles about 1-2666 by 1-4000.

A species of Scyllium, a cartilaginous fish, probably a new species. I have sent a specimen to Chatham. Corpuscles about 1-1000 by 1-2000.

In a female of the same kind some of the blood-particles were as large as 1-666 by 1-888; nucleus about 1-2666 and globular.

Fœtus of *Squalus acanthias*; corpuscles about 1-1000 by 1-1600: fœtus about seven inches long.

Fœtus of *Squalus squatina*, about six inches long; corpuscles about 1-1000 by 1-1333.

Small fish; I have not yet made out the species; corpuscles about 1-2000 by 1-2666.

Another small fish, the kind of which is at present unknown to me; corpuscles about 1-2666; the majority of them circular.

These are the results of the few observations I made in Constantinople. Not having books to refer to, I could not at the time deter-

mine several of the fishes, nor have I yet had leisure to compare my notes with authorities on the subject, to make out the species. The size of the particles of *all* the cartilaginous fishes is very much larger than of the osseous; the particles were few in number, transparent, soft, readily changing their shape from slight pressure; *nuclei distinct.*

I have given the dimensions just as I noted them down. All the fishes were fresh. J. D.

Constantinople, Jan. 8, 1842.

I have had a Humming Bird killed and instantly brought to me; its blood-corpuscles were beautifully definite, regular and uniform. The disc very thin, perfectly flat, the nucleus slightly raised, and the two corresponding in outline. The corpuscle 1-2666th by 1-4000th of an inch; the long diameter of the nucleus very nearly 1-4000th. The blood was small in quantity, as I apprehend is the blood of birds generally, but not deficient in red corpuscles. I have found its temperature to be about 105°. Whilst its solid food is insects, I believe its drink is the sweet juice of flowers. I have not a book to refer to for the species. Tail-feathers black; head green; rump green; wings brownish, almost black. J. D.

Barbadoes, Jan. 7, 1846.

The next paper was entitled "Descriptions of thirty new species of *Helicea*, belonging to the collection of H. Cuming, Esq.," by Dr. L. Pfeiffer:—

1. Helix Swainsoni, Pfr. *Hel. testâ umbilicatâ, utrinque depressissimâ, tenui, pellucidâ, subarcuatim ruguloso-striatâ, virescenti-fulvâ, lineis 2 rufis ornatâ; anfractibus 5 depressis, medio convexiusculis, carinatis; carinâ rufescente, acutâ, breviter prominente, subrugulosâ; umbilico mediocri, profundo; aperturâ perobliquâ, depressè securiformi; peristomate simplice, recto, margine columellari subincrassato.*
Diam. 16, alt. 5 mill.
From Tahiti; under stones (B. W. Tucker, Esq.).

2. Helix stenostoma, Pfr. *Hel. testâ imperforatâ, globuloso-depressâ, solidâ, sublævigatâ, nitidâ, albâ, fasciâ unicâ fuscâ ad peripheriam et seriebus 2 macularum aurantiarum ornatâ, punctisque griseis obsoletè aspersâ; anfractibus 4½ vix convexiusculis, ultimo ventroso, anticè abruptè deflexo; aperturâ subhorizontali, ellipticâ; peristomate albo, labiato, marginibus approximatis, supero breviter expanso, basali arcuato, appressè reflexo.*
Diam. 13–15, alt. 8½–9 mill.
Locality unknown.

3. Bulimus holostoma, Pfr. *Bul. testâ rimato-perforatâ, cylindraceâ, apice obtuso, opaco, carneo-cinereo, obliquè et validè plicato-costato; anfractibus 7 subplanulatis, deorsum attenuatis, supernè subangulatis, ultimo ¼ longitudinis subæquante; aperturâ*

verticali, oblongâ, integrâ; peristomate simplice, acuto, marginibus subparallelis, supero breviter soluto.

Long. 9, diam. 2⅔ mill.

From Cobija, Bolivia, on the hills under bushes (H. Cuming). The same species brought from the Sandwich Islands by B. W. Tucker, Esq.?

4. Bulimus Leai, Pfr. *Bul. testâ imperforatâ, ovato-conoideâ, obtusâ, soliduld, obliquè tenuiter striatâ, nitidâ, fulvescenti-albâ; anfractibus 5½ convexiusculis, ultimo spirâ breviore, basi subgloboso; columellâ strictiusculâ, declivi, perdilatatâ, subplanatâ, basi subtruncatâ; aperturâ obsoletè subtetragono-rotundatâ, intus albâ; peristomate breviter expanso, subincrassato.*

Long. 37, diam. 24 mill.

From the Philippine Islands (H. Cuming).

Nearly allied to *Bul. cincinniformis.*

5. Bulimus fenestratus, Pfr. *Bul. testâ perforatâ, subfusiformi-oblongâ, soliduld, longitudinaliter profundè undulato-sulcosâ, albâ, fasciis infra 65, et strigis undulatis nigricanti-castaneis fenestratâ; suturâ crenulatâ; anfractibus 6½ convexiusculis, ultimo spiram conicam, acutam paulò superante; columellâ subplicatâ, obliquè recedente, lilaceâ; aperturâ oblongo-semiovali, intus lilacinâ; peristomate expanso, margine columellari supernè angulatim reflexo, subappresso.*

Long. 45, diam. 18 mill.

From Mexico.

6. Bulimus Darwini, Pfr. *Bul. testâ profundè rimatâ, ovato-conicâ, soliduld, rugis nodulatis et crispis, validè sculptis, sordidè albidis; spirâ conicâ, apice acutiusculo, corneo; anfractibus 6 convexis, 3 supremis sublævigatis, ultimo spiram subæquante; columellâ subtortâ, subverticali; aperturâ latâ, subovali, intus nitiduld, albâ, tuberculo calloso, profundo in ventre anfractûs penultimi coarctatâ; peristomate simplice, recto, margine dextro supernè arcuato, columellari perdilatato, patente.*

Long. 17, diam. 19 mill.

From the Gallapagos Islands; found on bushes (C. Darwin, Esq.).

7. Bulimus sculpturatus, Pfr. *Bul. testâ perforatâ, ovato-turritâ, tenuiusculâ, longitudinaliter subremotè et validè undulato-rugosâ, interstitiis rugarum spiraliter argutè striatâ, fusculâ, spirâ elongato-conicâ, apice acutiusculo, corneo; anfractibus 7 convexis, ultimo ⅓ longitudinis subæquante; columellâ strictâ, basin aperturæ attingente; aperturâ ellipticâ, basi angulatâ; peristomate simplice, acuto, margine columellari fornicatim reflexo, libero.*

Long. 14, diam. 6½ mill.

From the Gallapagos Islands; found on bushes (Darwin).

8. Bulimus Hondurasanus, Pfr. *Bul. testâ apertè perforatâ ovato-conicâ, lævigatâ, nitidâ, flavescenti-albidâ, fasciis 3 areâque umbilicali fusco-roseis ornatâ; anfractibus 6 vix convexiusculis,*

ultimo spirâ conicâ, acutâ paulò breviore; columellâ strictâ, verticali; aperturâ ovali-oblongâ, intus concolore; peristomate simplice, recto, margine columellari in laminam triangularem subfornicatam expanso.

Long. 18½, diam. 10 mill.

From Honduras (Dyson).

9. Bulimus sarcodes, Pfr. *Bul. testâ apertè perforatâ, oblongo-conicâ, tenui, striatulâ, lineis spiralibus sub lente obsoletissimè decussatâ, carneâ; spirâ conicâ, acutiusculâ; anfractibus 6 convexiusculis, ultimo ⅖ longitudinis subæquante; columellâ leviter arcuatâ; aperturâ ovali, intus nitidâ; peristomate recto, acuto, margine dextro arcuato, columellari dilatato, fornicatim patente.*

Long. 17½, diam. 8 mill.

From Honduras (Dyson).

10. Bulimus Tuckeri, Pfr. *Bul. testâ perforatâ, cylindraceo-subulatâ, tenui, longitudinaliter distinctè striatâ, nitidulâ, cereâ; spirâ elongatâ, apice acutiusculo; anfractibus 9 convexiusculis, ultimo ¼ longitudinis vix æquante; columellâ obliquè recedente; aperturâ ovali-oblongâ; peristomate simplice, acuto, margine columellari supernè dilatato, patente.*

Long. 9, diam. 2¾ mill.

From Sir Charles Hardy's Island, Pacific Ocean (B. W. Tucker, Esq.).

11. Bulimus Gruneri, Pfr. *Bul. testâ angustè perforatâ, cylindraceo-turritâ, lævigatâ, nitidâ, albidâ unicolore vel fusco obliquè strigatâ vel macularum spadicearum seriebus nonnullis cingulatâ; spirâ elongatâ, apice acuto; suturâ albo-marginatâ; anfractibus 7–8 planis, ultimo ⅓ longitudinis æquante; columellâ subtortâ; aperturâ ovali-oblongâ; peristomate simplice, recto, margine columellari basi subexpanso, supernè fornicatim reflexo.*

Long. 28, diam. 10 mill.

β. Perforatione apertâ, margine peristomatis fornicatim patente.

From Mexico.

12. Bulimus Vincentinus, Pfr. *Bul. testâ subperforatâ, fusiformi, tenui, lævigatâ, lineis concentricis leviter impressis sculptâ, nitidâ, pellucidâ, lutescenti-hyalinâ, fasciis 5 subæqualibus violaceo-fuscis ornatâ; spirâ conicâ, apice acutiusculo, nigro; anfractibus 6 planiusculis, ultimo spiram subæquante, basi attenuato; columellâ paulò recedente; aperturâ obliquâ, ovali-oblongâ, intus concolore; peristomate tenui, margine dextro breviter expanso, supernè dilatato, columellari in laminam triangularem angulatim reflexo, perforationem ferè claudente.*

Long. 30, diam. 11½ mill.

β. unicolor citrinâ vel stramineâ, paulò gracilior.

Long. 30, diam. 10½ mill.

From the Island of St. Vincents (Rev. L. Guilding): var. β. from Venezuela; on bushes (Linden).

13. Bulimus Orbignyi, Pfr. *Bul. testâ umbilicatâ, oblongo-turritâ, tenui, regulariter et confertim plicatâ, albâ; spirâ turritâ, acutâ; anfractibus* 7½ *convexiusculis, ultimo* ⅔ *longitudinis subæquante; umbilico angusto, aperto; columellâ vix arcuatâ; aperturâ oblongâ; peristomate simplice, acuto, marginibus subparallelis supernè conniventibus, columellari subfornicato, patente.*
Long. 19, diam. 8 mill.
Locality unknown.

14. Bulimus Petiti, Pfr. *Bul. testâ perforatâ, ovato-conicâ, solidulâ, longitudinaliter rugoso-striatâ, striis concentricis, irregularibus obsoletissimè subdecussatâ, fuscâ; spirâ conicâ, apice obtuso, pallido; suturâ crenulatâ, albido-marginatâ; anfractibus* 6 *planiusculis, ultimo spiram paulò superante; columellâ leviter arcuatâ; aperturâ acuto-ovali, intus nitidulâ, lividâ; peristomate simplice, recto, margine dextro acuto, columellari dilatato, albido, liberè reflexo.*
Long. 26, diam. 16 mill.
From Peru.

15. Bulimus Sandwicensis, Pfr. *Bul. testâ perforatâ, cylindraceo-turritâ, apice acutiusculo, tenui, striatulo, corneo, strigis albis, opacis, irregularibus, variegato; anfractibus* 10 *vix convexiusculis, ultimo* ⅓ *longitudinis non æquante, basi circa perforationem apertam subcompresso; aperturâ oblongo-ovali; peristomate simplice, tenui, margine dextro leviter arcuato, expansiusculo, columellari membranaceo, fornicato, patente.*
Long. 15, diam. 4½ mill.
From the Sandwich Islands (B. W. Tucker, Esq.).

16. Pupa pacifica, Pfr. *Pup. testâ profundè rimatâ, ovato-cylindraceâ, apice obtusiusculo, solidulo, sublævigato, fusco-corneo; anfractibus* 5½ *convexis, ultimo* ⅓ *longitudinis subæquante; aperturâ semiovali, edentulâ; peristomate breviter expanso, intus albo-labiato, margine dextro supernè breviter curvato, tuberculo calloso interdum juxtaposito, columellari latiore, patente.*
Long. 4⅓, diam. 2⅓ mill.
From Sir Charles Hardy's Island, Pacific Ocean (B. W. Tucker, Esq.).

17. Achatina cylindracea, Pfr. *Ach. testâ subcylindracea utrinque breviter attenuatâ, lævigatâ, nitidâ, lutescenti-corneâ; suturâ lineari, albo-marginatâ; spirâ brevi, conoideâ, obtusiusculâ; anfractibus* 5 *planulatis, ultimo* ¾ *longitudinis æquante; columellâ tortâ, laminâ callosâ, albâ, acutè prominente, per longitudinem munitâ, subtruncatâ; aperturâ angustâ, acuminato-oblongâ, basi rotundatâ; peristomate simplice, margine dextro medio antrorsum dilatato.*
Long. 13, diam. 5½ mill.
From Tortilla, Central America; in damp places.
Belongs, by the formation of the columella, to that aberrant group of *A. columna, Lattrei, aberrans, Dysoni, anomala, splendida,* &c.

18. Achatina Dysoni, Pfr. *Ach. testâ oblongo-conicâ, tenuissimâ, glabrâ, pellucidâ, nitidâ, lutescenti-corneâ; spirâ conicâ, obtusiusculâ; suturâ simplice; anfractibus 5 convexiusculis, ultimo $\frac{3}{8}$ longitudinis subæquante, deorsum subdilatato; columellâ arcuatim tortâ, subcallosâ, vix truncatâ; aperturâ angustâ, acuminato-oblongâ, basi rotundatâ; peristomate simplice, tenui, margine dextro medio antrorsum dilatato.*
Long. $9\frac{1}{2}$, diam. 4 mill.
From Honduras; found under decayed leaves by Mr. Dyson.

19. Achatina Sandwicensis, Pfr. *Ach. testâ ovato-conicâ, obliquè striatâ, subopacâ, sordidè corneâ; spirâ conicâ, obtusiusculâ; suturâ lineâ impressâ marginatâ; anfractibus $6\frac{1}{2}$ planulatis, ultimo $\frac{1}{3}$ longitudinis vix superante; columellâ arcuatâ, plicato-tortâ; aperturâ latâ, semiovali; peristomate simplice, margine dextro obtuso, columellari subreflexo, appresso.*
Long. 7, diam. $3\frac{1}{3}$ mill.
From the Sandwich Islands (B. W. Tucker, Esq.).

20. Achatina (Glandina) Sowerbyana, Pfr. *Ach. testâ ovato-fusiformi, tenuiusculâ, diaphanâ, longitudinaliter confertim plicatâ, striis spiralibus, inæqualiter distantibus decussato-granulatâ, fulvo-rubellâ, strigis remotis, fuscis ornatâ; spirâ conicâ, apice acutâ; suturâ albo-marginatâ, crenulatâ; anfractibus $7\frac{1}{2}$ planiusculis, ultimo $\frac{5}{9}$ longitudinis subæquante; columellâ arcuatâ, basi abruptè truncatâ; aperturâ acuminato-oblongâ; peristomate simplice, marginibus callo tenui junctis, dextro repando.*
Long. 88, diam. 38 mill.
From Totontepec, Mexico; on decayed vegetable matter.

21. Achatina (Glandina) isabellina, Pfr. *Ach. testâ fusiformi-oblongâ, tenui, nitidâ, sub lente spiraliter confertim striatâ, pellucidâ, isabellinâ; suturâ lineâ impressâ marginatâ; anfractibus 6 convexiusculis, ultimo spirâ conicâ, obtusâ vix breviore; columellâ obliquâ, strictiusculâ, supra basin aperturæ elliptico-oblongæ breviter truncatâ; peristomate simplice, obtuso.*
Long. 26, diam. medio 10 mill.
From Mexico; found in decayed trunks of trees.

22. Achatina (Glandina) Tortillana, Pfr. *Ach. testâ subfusiformi-ovatâ, solidulâ, striis longitudinalibus, confertis regulariter sculptâ, nitidâ, pellucidâ, pallidè corneâ, maculis et strigis opacis, lactescentibus irregulariter signatâ; suturâ submarginatâ; anfractibus $7\frac{1}{2}$ convexiusculis, ultimo spiram conicam, obtusam, vix superante; columellâ fortiter arcuatâ, supra basin aperturæ elliptico-oblongæ abruptè truncatâ; peristomate simplice, obtuso, margine dextro medio subdilatato.*
Long. 20, diam. medio 8 mill.
From Tortilla, Central America; in damp places.

23. Bulimus auratus, Pfr. *Bul. testâ subobtectè perforatâ, oblongo-turritâ, tenui, longitudinaliter subtiliter striatâ, pellucidâ,*

auratâ, lineis saturatioribus spiralibus obsoletè notatâ; spirâ turritâ, obtusâ; suturâ submarginatâ, minutè crenulatâ; anfractibus 7 vix convexiusculis, ultimo $\frac{2}{5}$ longitudinis vix æquante; columellâ strictiusculâ; aperturâ ovali-oblongâ; peristomate simplice, recto, margine columellari breviter reflexo, subappresso.
Long. 30, diam. 10 mill.
Locality unknown.

24. Bulimus Panayensis, Pfr. *Bul. testâ imperforatâ, subulatâ, tenui, lævigatâ, pellucidâ, cereo-hyalinâ; spirâ elongatâ, apice obtuso; anfractibus 8 latis, vix convexiusculis, ultimo $\frac{1}{4}$ longitudinis vix æquante; columellâ brevi, strictiusculâ; aperturâ ovali-oblongâ, basi subangulatâ; peristomate simplice, recto, margine columellari breviter reflexo, appresso.*
Long. 11, diam. $2\frac{1}{2}$ mill.
From Dingle, island of Panay (Cuming).

25. Bulimus perspectivus, Pfr. *Bul. testâ umbilicatâ, oblongo-conicâ, tenui, striatulâ, pellucidâ, nitidâ, rufo-corneâ; spirâ elongato-conicâ, acutiusculâ; anfractibus 7 convexiusculis, ultimo $\frac{2}{5}$ longitudinis æquante, basi subangulatim compresso; umbilico angusto, profundè perspectivo; aperturâ oblongâ; peristomate simplice, rufo, marginibus conniventibus, callo tenui junctis, dextro breviter expanso, columellari dilatato, patente.*
Long. 16, diam. $6\frac{1}{2}$ mill.
Locality unknown.

26. Bulimus Meridanus, Pfr. *Bul. testâ perforatâ, oblongo-subfusiformi, striatulâ, lævigatâ, lutescenti-albidâ, fasciis angustis cæruleo-fuscis, vel latis castaneis, strigatim interruptis ornatâ; spirâ turrito-conicâ, acutiusculâ; anfractibus 6 planiusculis, ultimo spiram æquante; columellâ leviter arcuatâ; aperturâ oblongo-ovali, intus concolore; peristomate simplice, margine dextro breviter expanso, columellari dilatato, fornicatim reflexo, albo, perforationem ferè occultante.*
Long. 29, diam. 11 mill.
From Merida, Andes of Bolivia.

27. Bulimus Montevidensis, Pfr. *Bul. testâ perforatâ, ovato-conicâ, subfusiformi, tenui, obliquè striatulâ, non nitente, albidâ, opacâ, lineis longitudinalibus crebris, pellucidis, pallidè corneis strigatâ; spirâ conicâ, apice acuto; anfractibus 7–8 planiusculis, ultimo spirâ paulò breviore, interdum medio obsoletè angulato; columellâ verticali, strictâ; aperturâ oblongo-ovali; peristomate simplice, recto, margine columellari membranaceo, fornicatim reflexo.*
Long. 28, diam. 12 mill.
From Montevideo, Buenos Ayres.

28. Bulimus Jussieui, Val. Mur. *Bul. testâ perforatâ, ovato-conicâ, striis rudibus incrementi spiralibusque minutis irregulariter decussato-granulatâ, corneâ, obliquè albido-strigatâ; spirâ conicâ,*

acutiusculâ; anfractibus 6 convexiusculis, ultimo spiram æquante; columellâ recedente, subarcuatâ; aperturâ ovali, intus nitidè albâ; peristomate simplice, recto, margine columellari albido, dilatato, subfornicatim reflexo.

Long. 32, diam. 15 mill.

From Cusco.

29. Bulimus Bolivianus, Pfr. *Bul. testâ perforatâ, oblongo-turritâ, lineis impressis sub lente minutissimè decussatâ, nitidâ, albido-rubellâ, fasciis latis, badiis, subinterruptis ornatâ; spirâ turritâ, apice acuto, rubro; anfractibus 7 planis, ultimo convexiusculo, $\frac{4}{9}$ longitudinis subæquante; columellâ torto-plicatâ, roseâ; aperturâ ovali-oblongâ, intus concolore; peristomate simplice, margine dextro breviter expanso, columellari perdilatato, reflexo, excavato, perforationem rimæformem ferè tegente.*

Long. 33, diam. 13 mill.

From Merida, Andes of Bolivia.

30. Bulimus Oparanus, Pfr. *Bul. testâ subimperforatâ, subulatâ, longitudinaliter distinctè striatâ, tenui, hyalino-cereâ; spirâ subulatâ, acutiusculâ; anfractibus 9 vix convexiusculis, ultimo $\frac{2}{7}$ longitudinis subæquante; columellâ vix arcuatâ; aperturâ oblongo-ovali; peristomate simplice, recto, margine columellari fornicatim brevissimè reflexo, adnato.*

Long. 11, diam. 3 mill. (Spec. max.)

From the island of Opara; found in earth at the roots of plants (H. Cuming, Esq.).

The following paper was also read, entitled "Descriptions of new species of Shells," by Dr. J. H. Jonas:—

Cucullæa granulosa, Jonas. *Cuc. testâ quadrato-rhombeâ, turgidâ, tenuiusculâ, inæquivalvi, testaceo-albâ, violaceo-rubro posticè præsertim maculatâ et flammulatâ; lateribus supernè attenuatis, angulatis, antico breviore, infra rotundato, postico longiore, subangulato-declivi, umbonibus acutis incurvis, carinâ ab umbone ad angulum posticum et inferum decurrente; per longitudinem densè striatâ, liris striis transversalibus decussantibus subtiliter granulosis; ligamenti areâ mediocri, corio corneo nigro indutâ; intus albâ posticè violaceo tinctâ, margine serratâ, auriculâ internâ mediocri, cardinis dentibus lateralibus anticis tribus, posticis quatuor.*

Long. marginis ventralis, $2\frac{1}{4}$ poll.; altit. 2; crassities, $1\frac{3}{4}$ poll.

Specimina etiam majora vidi.

Hab. In Mari Chinensi.

This shell differs from the *Cucullæa concamerata*, Martini (*Cucullæa auriculifera*, Lam.), as follows: 1. It is thinner and less transversally prolonged; 2, the elevated longitudinal striæ are not flat, and not broader than the interstices, as with the other species, appearing subtilely granulated by transversely crossing and very close striæ; 3, the ligamentary area is somewhat flatter; 4, the internal auricles are smaller; and 5, there are on the anterior side three and

on the posterior four lateral teeth, whilst the other species has on each side *one* tooth less. (*Cardine utrinque subbicostato*, Lam.)

VENERUPIS TENUISTRIATA, Jonas. *Ven. testâ ovatâ, transversâ, æquivalvi, inæquilaterali, albâ, striis radiantibus tenuibus undulatis, sulcis incrementi distantibus decussatis, concinnè sculptâ; lateribus rotundatis, marginibus dorsali et ventrali parallelis leviterque arcuatis; lanulâ nullâ, ligamento longo, prominente, umbonibus parvis acutis; cardine utriusque valvæ dentibus tribus compressis; impressionibus musculorum magnis, rotundis, sinu palliari lato, profundo, semilunari.*

Long. 15, altit. 9, crassit. 6 lin.

Hab. Apud Singaporen.

Exstat in museo hon. Gruner.

The umbones are situated so near the anterior end that the superior margin of the shell almost forms the area.

FASCIOLARIA CLAVA, Jonas. *Fasc. testâ subfusiformi-clavatâ, ventricosissimâ, crassâ, ponderosâ, nodosâ, albâ, rubro variegatâ, filis fuscis transversim impresso-striatâ; anfractibus octo medio angulatis, tuberculis magnis compressis in angulo coronatis; ultimo supernè angulato et coronato, infra angulum seriebus tribus nodorum obtusorum armato; suturâ undulatâ, crispâ; caudâ spiræ subæquali, obliquè funiculatâ, rectâ, infernè subrecurvâ; aperturâ oblongo-ovatâ, intus hepaticâ, aurantio tenuissimè striatâ, labro crasso, dentato; dentibus striis externis respondentibus; columellâ cylindraceâ, hepaticâ, basi triplicatâ.*

Long. $5\frac{1}{2}$, lat. $3\frac{1}{6}$ poll.

Hab. In Oc. Indiâ.

AMPHIBOLA OBVOLUTA, Jonas. *Amph. testâ solidâ, nitidâ, supernè planâ, infernè convexâ, latè umbilicatâ; anfractibus quatuor obvolutis, suturâ profundâ divisis, transversè striatis, albis: ultimo zonis duabus latis, glaucis obsoletè balteato, obtusè supernè angulato; aperturâ ovatâ, labro posticè subexciso, columellâ rectâ, callosissimâ, callo umbilicum latum pro parte tegente; regione umbilicali et callo fuscis.*

Altit. ab apice ad aperturæ basin, 8; ad ultimi anfractûs basin, 6; diameter major $10\frac{1}{2}$, minor 8; aperturæ long. $6\frac{1}{2}$, latit. $3\frac{1}{2}$ lin.

Patria, Australia meridionalis.

Exstat in museo hon. Gruner.

Schumacher was the first who in his 'Essai d'un nouveau Système des habitations des vers testacés, à Copenhague 1817,' elevated the *Nerita nux avellana*, Chemn., to a peculiar genus, which he named *Amphibola*. Lamarck ranged it among the Ampullarias, till Quoy and Gaimard separated it, after careful examination of the animal, from this genus, and instituted it the type of the genus *Ampullacera*. It appears from this that *Amphibola* and *Ampullacera* are identical, and that the first denomination has the priority.

Our species is very like to the *Amphibola avellana*, but may however be distinguished from it by the following differences:—1, it is

thicker; 2, the whorls are lying in one plane, the spire is depressed, not elevated, as with the other species; and the last whorl, which almost entirely forms the whole shell, is very much drawn down; 3, it is not perforated, and although largely umbilicated, yet the other smaller whorls are not visible in the umbilic; and 4, it distinguishes itself by a very callous columella, which partly propagates over the spire, following the suture at a distance of five lines.

April 14, 1846.

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

A collection of forty-six Bird-skins from India, received from Col. Sykes, was exhibited to the Meeting. The collection was of interest from containing specimens of several species obtained further north than it is hitherto recorded that they have been observed.

The following communications were read: "Descriptions of twenty new species of *Helicea*, in the collection of H. Cuming, Esq.," by Dr. L. Pfeiffer:—

1. Helix suturalis, Pfr. *Hel. testâ latè umbilicatâ, depressâ, subdiscoideâ, tenui, sub lente minutissimè granulosâ, fusco-corneâ; spirâ planâ, medio subimmersâ; suturâ profundâ; anfractibus* 4 *convexissimis, ultimo anticè descendente; aperturâ perobliquâ, subcirculari; peristomate simplice, marginibus conniventibus, dextro recto, supernè fornicato, columellari subrecedente, arçuato, basalique breviter reflexo.*
Diam. 10, alt. 4 mill.
Found at Honduras under decayed leaves by Mr. Dyson.
Nearly allied to *H. Nystiana*.

2. Helix Candaharica, Pfr. *Hel. testâ umbilicatâ, orbiculato-convexiusculâ, obliquè striatulâ, nitidulâ, fuscescenti-albidâ, fasciis angustis, maculosè interruptis, nigricantibus et rufis ornatâ; spirâ vix elevatâ, apice nitido, corneo; anfractibus* 5 *convexiusculis, ultimo anticè non descendente; umbilico infundibuliformi, anfractuum penultimum latè monstrante, medio angustissimo; aperturâ obliquâ, lunato-ovali; peristomate acuto, intus subremotè labiato, marginibus conniventibus, columellari vix dilatato.*
Diam. 16, alt. $7\frac{1}{2}$ mill.
From Candahar, East Indies (Benson).

3. Helix aulacospira, Pfr. *Hel. testâ latè umbilicatâ, depressâ, discoideâ, tenui, irregulariter et leviter malleatâ, lineis impressis, concentricis, confertis regulariter sulcatâ, lutescenti-corneâ; spirâ planâ; anfractibus* $4\frac{1}{2}$ *depressis, celeriter accrescentibus; umbilico lato, perspectivo; aperturâ subverticali, obliquè lunato-ovali; peristomate simplice, tênui, margine columellari non reflexo.*
Diam. 12, alt. $4\frac{1}{2}$ mill.
Locality unknown.

4. Helix Gossei, Pfr. *Hel. testâ imperforatâ, orbiculato-conoideâ, tenui, irregulariter plicatulo-striatâ, non nitente, diaphanâ, fulvidâ, fasciâ unicâ peripherica, angustâ, castaneâ, alteráque superiore*

obsoletâ ornatâ; spirâ breviter conoideâ, obtusâ; anfractibus 5 *planiusculis, ultimo basi subplanulato; columellâ declivi, angustâ, planâ, introrsum acutâ; aperturâ obliquâ, elliptico-lunari, intus concolore; peristomate simplice, tenui, recto.*

Diam. 16, alt. 9 mill.

From the Blue Mountains (Jamaica), under stones; found by Mr. Gosse.

5. Helix Montfortiana, Pfr. *Hel. testâ imperforatâ, turbinatâ, crassâ, ponderosâ, nigricanti-rufâ, epidermide fusco-cinereâ hydrophanâ indutâ; spirâ conoideâ, apice obtuso, nudo, nitido, violaceo-purpurascente; anfractibus* $4\frac{1}{2}$ *vix convexiusculis, ultimo angulato; angulo anticè evanescente; columellâ declivi, callosâ, albâ, basi subdentatâ; aperturâ subtetragonâ, intus nitidè albâ; peristomate breviter reflexo, nigro-fusco limbato.*

Diam. 31, alt. 22 mill.

From the Philippine Islands.

This shell appears intermediate between *Hel. Bruguiereana*, Pfr., and *carbonaria*, Sow.

6. Achatinella Rohri, Pfr. *Ach. testâ ovato-conicâ, longitudinaliter striatulâ, striis spiralibus, confertissimis decussatâ, albido-fulvâ, fasciis angustis castaneis variè ornatâ; spirâ conicâ, acutiusculâ; anfractibus* 6 *vix convexiusculis, ultimo spiram subæquante, medio compresso; columellâ tortâ, callosâ, vix dentatâ; aperturâ subtetragonâ, intus nitidè lacteâ; peristomate recto, intus labiato, marginibus subparallelis, dextro supernè breviter curvato.*

Long. 24, diam. 13 mill.

From the Sandwich Islands (Capt. Rohr).

7. Achatinella tæniolata, Pfr. *Ach. testâ ovato-oblongâ, solidâ, striatulâ, nitidâ, albâ, fasciis variis fuscis, deorsum obsoletioribus ornatâ; spirâ conicâ, acutiusculâ; anfractibus* 6 *convexiusculis, ultimo* $\frac{4}{9}$ *longitudinis subæquante; columellâ albâ, supernè validè dentato-plicatâ; aperturâ irregulariter semiovali, intus albâ, nitidâ; peristomate extus brevissimè incrassato, intus valdè labiato, margine columellari dilatato, reflexo, appresso.*

Long. 20, diam. medio 11 mill.

From the Sandwich Islands.

8. Bulimus (Partula) amabilis, Pfr. *Bul. testâ sinistrorsâ, subperforatâ, ovato-turritâ, solidulâ, striatulâ, nitidâ, citrinâ, apice acuto rubicundo; suturâ albo-marginatâ; anfractibus* 5, *supremis planis, reliquis convexis, ultimo inflato, spirâ breviore; columellâ subsimplice, vix plicatâ; aperturâ oblongo-semiovali; peristomate subincrassato, albo, expanso-reflexiusculo, margine columellari lato, plano, patente.*

Long. 23, diam. $11\frac{1}{2}$ mill.

β. Paulò minor, fasciis latis nigricanti-castaneis ornatus, peristomate fusco-livido.

From Annaa or Chain Island.

9. Bulimus (Partula) Ganymedes, Pfr. *Bul. testâ umbilicatâ, oblongo-conicâ, tenui, striis incrementi crebris lineisque undulatis, confertissimis, impressis minutè decussatâ, scabriusculâ, sub epidermide citrinâ fugacissimâ albicante, non nitente; spirâ conicâ, acutiusculâ; anfractibus 5½ convexiusculis, ultimo spiram subæquante, medio obsoletissimè angulato, fasciâ unicâ latiusculâ castaneâ ornato; columellâ strictiusculâ; aperturâ oblongâ, supernè obliquè truncatâ; peristomate simplice, tenui, undique latè expanso.*
Long. 23, diam. 10½ mill.
From the Society Islands.

10. Bulimus (Partula) Hebe, Pfr. *Bul. testâ perforatâ, globoso-conicâ, tenui, sub lente minutissimè decussatâ, hyalinâ; spirâ brevi, conicâ, acutâ; anfractibus 4½ planis, ultimo spiram superante, globoso; columellâ brevi, subplicatâ; aperturâ latâ, subsemicirculari, callo dentiformi profundo in ventre anfractûs penultimi coarctatâ; peristomate intus albo-calloso, undique breviter expanso.*
Long. 16, diam. 9 mill.
From the Society Islands (Mr. Mallet).

11. Bulimus (Partula) isabellinus, Pfr. *Bul. testâ subperforatâ, oblongo-conicâ, solidâ, striatulâ, isabellinâ; spirâ conicâ acutiusculâ; anfractibus 5 convexiusculis, supremis lineis impressis, spiralibus tenuissimè sculptis, ultimo spirâ paulò breviore, basi anticè rotundato; columellâ albâ, plicato-gibbâ; aperturâ oblongo-ovali, callo dentiformi, profundo in ventre anfractûs penultimi coarctatâ; peristomate calloso, albo, latè expanso, reflexiusculo, margine columellari dilatato, sinuato-reflexo.*
Long. 22, diam. 10 mill.
Locality unknown.

12. Bulimus (Partula) radiolatus, Pfr. *Bul. testâ subperforatâ, oblongo-attenuatâ, apice obtuso, tenui, lineis spiralibus impressis, distantiusculis sculptâ, pallidè stramineâ, strigis saturatioribus et lineis fuscis radiolatâ; anfractibus 5 convexiusculis, ultimo spiram subæquante, anticè basi tumido; columellâ brevi, breviter recedente; aperturâ obliquè ovali, intus nitidâ, flavâ; peristomate simplice, tenui, albo, expanso, margine dextro strictiusculo, columellari supernè dilatato, fornicato-patente.*
Long. 19, diam. 10 mill.
β. Testa carnea, radiis cinnamomeis.
From New Ireland.

13. Bulimus Dysoni, Pfr. *Bul. testâ angustè perforatâ, oblongo-ovatâ, solidulâ, tenuiter longitudinaliter striatâ, subdiaphanâ, fusco-corneâ; spirâ conicâ, apice acutiusculo; anfractibus 6–6½ convexis, ultimo ⅔ longitudinis subæquante; columellâ leviter arcuatâ, basin attingente; aperturâ ellipticâ, basi subangulatâ; peristomate simplice, recto, marginibus callo tenui junctis, dextro arcuato, cum columellari, supernè dilatato, fornicatim reflexo, angulum formante.*

Long. 20, diam. 9½ mill.
From Honduras (Mr. Dyson).

14. Bulimus candelaris, Pfr. *Bul. testâ sinistrorsâ, profundè rimatâ, cylindraceâ, apice sensim attenuato, acutiusculo, subobliquè striatulo, sordidè albo; anfractibus* 9 *planiusculis, ultimo minus obliquè descendente,* ⅓ *longitudinis vix æquante, basi subrotundato; aperturâ semiovali, intus nitidâ, albâ; peristomate albo, undique expanso, marginibus callo tenui junctis, columellari dilatato, patente.*
Long. 27, diam. 8 mill.
Locality unknown.

15. Bulimus Guerini, Pfr. *Bul. testâ imperforatâ, oblongo-ovatâ, tenuiusculâ, irregulariter rugoso-striatâ, fulvo-fuscâ; spirâ conicâ, obtusâ, pallidius fulvidâ, strigis et maculis rufis ornatâ; anfractibus* 5 *convexiusculis, ultimo spirâ paulò longiore; columellâ lutescente, arcuatâ, supernè subtortâ; aperturâ acuto-ovali, intus nitidissimâ, plumbeâ; peristomate breviter reflexo, lutescente, basi cum columellâ angulum indistinctum formante.*
Long. 41, diam. 18½ mill.
From New Granada.

16. Bulimus indicus, Pfr.—*Achatina gracilis*, Benson, MSS.—*Bul. testâ subperforatâ, subulatâ, tenui, diaphanâ, corneo-cereâ, subarcuatim confertissimè striatâ; spirâ subulatâ, apice acutiusculo; anfractibus* 8 *planiusculis, ultimo* ⅓ *longitudinis subæquante; columellâ rectâ, verticali; aperturâ oblongâ; peristomate simplice, acuto, margine columellari usque ad basin breviter reflexo, perforationem ferè tegente.*
Long. 10, diam. 3½ mill.
From East India.

17. Bulimus Kieneri, Pfr. *Bul. testâ breviter rimatâ, cylindraceo-turritâ, tenui, obliquè confertim costatâ, fusco-corneo et albido irregulariter marmoratâ; spirâ turritâ, apice acutiusculo nigricante; suturâ profundâ, crenatâ; anfractibus* 13 *convexis, ultimo* ¼ *longitudinis subæquante, basi obsoletè unicarinato; aperturâ lunato-circulari; peristomate simplice, undique expanso, marginibus conniventibus, dextro perarcuato, columellari dilatato, patente.*
Long. 18, diam. anfr. antepenult. 6 mill.
From Honduras (Mr. David Dyson).

18. Bulimus Martinicensis, Pfr. *Bul. testâ rimato-perforatâ, oblongo-turritâ, obliquè striatulâ, solidulâ, lutescenti-corneâ; spirâ turritâ, obtusiusculâ; anfractibus* 7 *convexis, ultimo* ⅓ *longitudinis vix superante; aperturâ ovato-oblongâ; peristomate breviter expanso, intus albo-labiato, labio extus pellucente, marginibus subconvergentibus, dextro arcuato, columellari dilatato, patente.*
Long. 20, diam. 8 mill.
From the island of Martinique (Petit).

19. Bulimus Nilagiricus, Pfr. *Bul. testâ rimato-perforatâ, oblongo-turritâ, solidâ, opacâ, lineis impressis confertissimis subundulatis obsoletè sculptâ, fuscâ, albido obliquè strigatâ; spirâ regulariter turritâ, apice obtusiusculo; anfractibus* 8 *vix convexiusculis, ultimo* $\frac{1}{3}$ *longitudinis subæquante, basi subcompresso; aperturâ ovali; peristomate expanso, latè albo-labiato, margine dextro supernè subangulato, columellari usque ad basin dilatato, patente.*
Long. $28\frac{1}{2}$, diam. 8 mill.
From the Neelgherries, East Indies.

20. Bulimus zonulatus, Pfr. *Bul. testâ perforatâ, oblongo-conicâ, tenui, lævigatâ, opacâ, pallidè stramineâ, seriebus* 2 *macularum fuscarum pellucidarum cinctâ, basi lineis* 2 *castaneis ornatâ; spirâ conicâ, acutiusculâ, apice corneo; anfractibus* 6 *convexiusculis, ultimo spiram vix superante; columellâ strictâ; aperturâ ovali-oblongâ; peristomate acuto, tenui, margine columellari a basi dilatato, membranaceo, angulatim latè reflexo, perforationem ferè occultante.*
Long. 18, diam. 9 mill.
From Cabanatuan, province of Nueva Ecija, island of Luzon; found by Mr. H. Cuming.

"Description of nine new species of *Helicea*, collected by H. Cuming, Esq.," by Dr. L. Pfeiffer:—

1. Helix lucidella, Pfr. *Hel. testâ minutâ, perforatâ, depressâ, striatulâ, nitidissimâ, brunneâ; spirâ subplanulatâ; suturâ albo-marginatâ; anfractibus* 4 *planis, ultimo basi vix convexiore, medio impresso, angustissimè perforato; aperturâ obliquè lunari; peristomate simplice, obtuso, margine columellari declivi, vix incrassato.*
Diam. $3\frac{2}{3}$, alt. 2 mill.
Found on the island of Luzon.

2. Helix arctispira, Pfr. *Hel. testâ umbilicatâ, depressâ, subdiscoideâ, confertim costatâ, albidâ, epidermide tenui fuscescente indutâ; spirâ convexiusculâ; anfractibus* $5\frac{1}{2}$ *convexis, angustissimis; umbilico lato, perspectivo; aperturâ parvulâ, subverticali, lunato-orbiculari; peristomate simplice, acutâ.*
Diam. $2\frac{1}{2}$, alt. $1\frac{1}{4}$ mill.
From the island of Juan Fernandez.
Intermediate between *H. epidermia*, Aut., and *tessellata*, Mühlf.

3. Helix cyathellus, Pfr. *Hel. testâ umbilicatâ, conicâ, obliquè costatâ, tenuiusculâ, unicolore corneâ; spirâ pyramidatâ, acutiusculâ; anfractibus* 9 *angustissimis, carinâ filiformi cinctis, ultimo basi planiusculo, sublævigato; umbilico majusculo, pervio; aperturâ depressâ, angulato-lunari; peristomate simplice, margine supero brevi, recto, basali leviter arcuato, brevissimè reflexo.*
Diam. $5\frac{1}{3}$, alt. 4 mill.
From the island of Panay.

4. Helix doliolum, Pfr. *Hel. testâ perforatâ, turbinatâ, confer-*

tissimè et minutè costulato-striatâ, pellucidâ, non nitente, corneâ; spirâ turbinatâ, apice obtusiusculo; anfractibus 5 convexiusculis, ultimo basi subplanato; aperturâ depressâ, latè lunari; peristomate simplicissimo, recto.
Diam. 3½, alt. 2½ mill.
From Sibonga, island of Zebu.

5. Bulimus dilatatus, Pfr. *Bul. testâ imperforatâ, ovato-conicâ, obtusiusculâ, solidâ, obliquè striatâ, subtilissimè punctatâ, castaneâ, supernè fulvâ; anfractibus 6 planiusculis, ultimo ad suturam albo-unifasciato, spirâ multò breviore; columellâ subrectâ, callosâ, albâ, dilatatâ; aperturâ obliquâ, latè semiovali, intus lacteâ; peristomate subincrassato, expanso, margine basali reflexo, appresso.*
Long. 34, diam. 22 mill.
Island of Luzon.

6. Bulimus elongatulus, Pfr. *Bul. testâ imperforatâ, subulatâ, solidulâ, sub epidermide tenuissimè striatâ (interdum obsoletè decussatâ), albâ; spirâ subulatâ, acutâ; anfractibus 8 planiusculis, ultimo tertiam longitudinis partem ferè æquante; columellâ breviter recedente, callosâ, planâ; aperturâ oblongo-ovali; peristomate simplice, margine dextro antrorsum subarcuato, columellari subincrassato, appresso.*
Long. 24, diam. 5½ mill.
Island of Luzon.

7. Bulimus Grateloupi, Pfr. *Bul. testâ imperforatâ, ovato-oblongâ, ruguloso-striatâ, tenuissimâ, nitidâ, pellucidâ, stramineo-albidâ; anfractibus 6–7 convexiusculis, ultimo spirâ paulò breviore; columellâ callosâ, retrorsum flexuosâ; aperturâ semiovali; peristomate simplice, acuto, margine dextro antrorsum arcuato.*
Long. 18, diam. 8 mill.
From the islands of Luzon and Panay.

8. Bulimus Philippinensis, Pfr. *Bul. testâ imperforatâ, ovato-turbinatâ, solidâ, nigricante, strigis obliquis epidermidis hydrophanæ griseo-fuscæ ornatâ; spirâ conicâ, obtusiusculâ, nudâ, pallidâ; anfractibus 6 convexis, diametro celeriter accrescentibus, ultimo spirâ paulò breviore; columellâ vix obliquâ, subtortâ, carneâ; aperturâ lunato-orbiculari, intus lacteâ; peristomate subincrassato, breviter reflexo, nigro-limbato, margine dextro valdè arcuato, columellari dilatato, expanso.*
β. Testa epidermide fusca, saturatius strigata ferè omninò obducta, fasciis variis nigricantibus circumdata.
Long. 63, diam. 41 mill.
From the islands of Luzon and Marinduque.

9. Helix Reeveana, Pfr. *Hel. testâ umbilicatâ, subdiscoideâ, tenuiusculâ, obliquè striatâ, albidâ, zonis 3–5 rufis ornatâ; spirâ vix convexiusculâ, obtusâ; anfractibus 4½–5 planiusculis, ultimo anticè subitò deflexo, basi concentricè et confertim striato; umbilico me-*

diocri, pervio; apertura subhorizontali, transversè ovali; peristomate subsimplice, reflexo, marginibus junctis.

Diam. 30, alt. 12 mill.

Island of Zebu.

This shell has been often mistaken for *H. Lasallii*, Eydoux, and is in many collections under that name; but *H. Lasallii* is not this species. It is quite congruent with *H. meretria*, Sow.

April 28, 1846.

No business was transacted.

May 12, 1846.

Richard C. Griffith, Esq., in the Chair.

Mr. H. E. Strickland exhibited a species of *Corvus*, discovered by Capt. H. M. Drummond, 42nd R. H., which the latter gentleman proposes to name *Corvus collaris*. In size and form it is closely allied to the Common Jackdaw, *Corvus monedula*, but differs in the much lighter silvery grey of the cheeks, occiput and nape, which passes into a well-marked patch of pure white on each side of the neck. The black on the crown is of less extent than in *Corvus monedula*, and the lower parts are of a slaty grey.

Capt. Drummond states that in Macedonia and Thessaly this bird takes the place of *C. monedula*, which is common in the south of Greece, and does not there differ from the Jackdaw of Britain.

May 26, 1846.

No business was transacted.

June 9, 1846.

George Gulliver, Esq., in the Chair.

A fœtal Condor, extracted from an egg laid in the menagerie, was exhibited to the Meeting. The egg had been placed under a common hen, which remained sitting on it for six weeks and two days.

The length of the specimen is $5\frac{3}{4}$ inches; the extremities, particularly the legs, are imperfectly developed, but the head had acquired a specific vulturine character; a strong line of downy filaments extends along the length of each pectoral muscle; all the other parts of the body are quite bare.

	inches.
Length of the head	$1\frac{3}{4}$
Length of bones of wing	2
Length of bones of leg to the end of longest toe ..	2

Mr. Gould exhibited to the Meeting three new species of the family of *Trochilidæ*, which he thus characterized:—

Trochilus (Petasophora) coruscans. *Troch. strigâ intense cæruleâ a mento per genas productâ in aures, quæ erectæ ut cristulæ conspicantur; plumis mediam gulam squamatim tegentibus nitide viridibus, æreo et coccineo colore resplendentibus; medio abdomine cyaneo; tectricibus caudæ inferioribus sordide viridibus, ad apices stramineis; alis purpurascente fuscis.*

Crown of the head, all the upper surface, wing-coverts and flanks green; tail-feathers very broad, steel-blue, with green reflections, and crossed near the extremity with a broad band of a blackish hue, as in the allied species *Anaïs* and *serrirostris*; a band of rich pure blue commences on the chin and extends along the sides of the cheeks and on the ear-coverts, which when erected form conspicuous tufts; the scale-like feathers of the centre of the throat rich shining green, with bronze and dull crimson reflections; centre of the abdomen blue; under tail-coverts dull green, broadly tipped with buff; wings purplish brown; bill black; feet brown.

Total length, $5\frac{1}{4}$ inches; bill, $1\frac{1}{16}$; wing, 3; tail, 2.

Hab. The part of South America of which this bird is a native is unknown.

This beautiful species is rather less in size than *P. Anaïs*, from which and every other species it is distinguished by the beautiful marking of the throat, the greater extent of the blue on the abdomen, and by the greater breadth of the feathers of the tail.

In my own collection.

TROCHILUS (——?) FLABELLIFERUS. *Troch. capite, collo, et pectore, nitide saturate cyaneo; dorso, uropygio, tectricibus caudæ superioribus, et lateribus nitide viridibus; lato maculo ad nucham semilunari, abdomine, tectricibus caudæ inferioribus, et caudâ albis; caudæ plumis ad extremam pogoniam fusco marginatis; alis nigrofuscis purpureo splendentibus.*

All the head, neck and chest rich deep shining blue; back, rump, upper tail-coverts and flanks shining green; a broad crescent-shaped mark at the back of the neck, abdomen, under tail-coverts and tail pure white, the feathers of the latter bordered at the extremity with brown; wings blackish brown, with purple reflections.

Total length, 5 inches; bill, $1\frac{1}{8}$; wing, 3; tail, 2.

Hab. Mexico.

Closely allied to *T. mellivora*, but distinguished from that species by its much greater size and by the narrowness and browner colour of the bordering of the tail-feathers.

TROCHILUS (——?) STROPHIANUS. *Troch. maculo viridi in frontem splendenti; lato maculo semilunari, inter violaceam gulam et abdominem viridem, albo; rectricibus nigris.*

On the forehead, immediately above the bill, a luminous spot of green; crown of the head, all the upper surface and abdomen dull green; throat rich bluish violet, separated from the green of the abdomen by a broad lunate gorget of white; all the tail-feathers black; wings blackish brown, with purple reflections; under tail-coverts white; bill black.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{3}{4}$; wing, $2\frac{1}{2}$; tail, $1\frac{3}{4}$.

Hab. Precise locality unknown.

Nearly allied to but smaller than the *Ornismyæ Clarisse* and *Parzudaki*.

June 23, 1846.

Harpur Gamble, Esq., M.D., in the Chair.

Professor Owen read a Memoir (Part II.) on the Dinornis, descriptive of parts of the skeleton transmitted from New Zealand since the reading of Part I. (Proc. Zool. Soc., November 1843.)

The bones referable to species defined in that communication were first described. Among these were the cranial portion of the skull of *Dinornis struthoides* and a corresponding portion of the skull of *Dinornis dromioides*, which in general form more resembled that part of the skull of the Dodo than of any existing bird; but they are remarkable for the great breadth of a low occipital region, which slopes from below upwards and forwards; the almost flat parietal region is continued directly forwards into the broad sloping frontal region; the temporal fossæ are remarkably wide and deep; the orbits small; the olfactory chamber expanded posteriorly, but not to so great an extent as in the Apteryx; the plane of the foramen magnum is vertical. Many other characteristics in the cranial organization of the genus *Dinornis* were described, and the specific distinction of the two mutilated crania pointed out.

The tympanic bone of the *Dinornis giganteus* was described in detail and compared with the same bone in existing birds.

Different cervical and dorsal vertebræ, referable to the species *Din. giganteus, ingens, struthoides* and *crassus*, were described. These vertebræ were remarkably entire, and with some of the best-preserved bones of the extremities, described in a subsequent part of the Memoir, had been obtained from a turbary formation on the coast of the Middle Island, near Waikawaite.

One of the most interesting of the novel acquisitions from this locality was an almost entire sternum, referred by Prof. Owen to the *Din. giganteus*. It is a subquadrate, keel-less, shield-shaped bone, broader than long, with the posterior angles and the xiphoid process prolonged, as in the Apteryx, but without the anterior emargination. The coracoid depressions very small. This bone was minutely described and compared with the keel-less sternums of the existing Struthious birds; that of the Apteryx being demonstrated to be most like the sternum of *Dinornis*.

The following bones of the extremities, imperfectly or not at all known in 1843, were next described:—

The entire femur of *Dinornis giganteus*. Entire tibiæ and tarso-metatarsi of *Din. giganteus*, indicating a robust variety of this stupendous bird to have existed in the Middle Island.

The tarso-metatarsus of *Dinornis ingens* from the North Island, distinguished by a rough depression indicative of a fourth or back-toe, and consequently a genus (*Palapteryx*) distinct from *Dinornis*.

Femora, tibiæ and tarso-metatarsi of a Dinornis of the height of the *Din. ingens*, but of more robust proportions, from the Middle Island; with a feeble indication of a surface for a back-toe.

The tibiæ and tarso-metatarsi of *Dinornis* (*Palapteryx*) *dromioides* from the North Island, confirming by their long and slender proportions the conjecture hazarded in the author's former memoir (Zool. Trans. vol. iii. pp. 252, 264). The tarso-metatarsus also shows the rough elliptical surface for the attachment of the back-toe, indicating the *Din. dromioides* to belong to the same generic or subgeneric section as *Din. ingens* from the North Island.

Femora, tibiæ and *tarso-metatarsi*, from the Middle Island, were next exhibited and described, which establish a new species, for which Prof. Owen proposed the name of *Din. casuarinus*: a small and feeble depression, five lines by three lines, indicates that this species had a back-toe in the corresponding position with that in the Apteryx, but more rudimental.

A very remarkable femur and tarso-metatarsal bone, also from the Middle Island, were exhibited, belonging to an additional tridactyle species, to which the name of *Dinornis crassus* was given. Of this species the author remarks: "With a stature nearly equal to that of the Ostrich, the femur and tarso-metatarsus present double the thickness in proportion to their length. It must have been the strongest and most robust of birds, and the best representative of the pachydermal type in the feathered class."

The third new species is comparatively a small one, being intermediate in size between the *Dinornis didiformis* and the *Din. otidiformis*; it was founded on remains exclusively from the North Island, and was called by the author *Dinornis curtus*.

The author expressed his grateful acknowledgments to the following gentlemen, to whom he was indebted for the opportunity of examining and depicting the specimens described in the present Memoir:—Capt. Sir Everard Home, Bart., R.N.; the Hon. William Martin, Chief Justice of New Zealand; the Rev. Archdeacon Williams, Corr. Memb. Z. S.; William Swainson, Esq., F.R.S., F.L.S., the distinguished naturalist; Colonel William Wakefield; J. R. Gowen, Esq., a Director of the New Zealand Company; the Rev. William Cotton, M.A.; the Rev. Richard Taylor, M.A.; the Rev. William Colenso, M.A.; Dr. Mackellar; George Bennett, Esq., F.L.S., and Percy Earl, Esq.

The paper (which was illustrated by numerous figures) concluded by some general comparisons and remarks on the geographical distribution of the different species of *Dinornis*, and with the following Table of admeasurements of the bones of the leg:—

TABLE OF ADMEASUREMENTS

Dimensions of

	Din. giganteus.	Din. ingens.		Din. crassus.
		v. robustus. f 2.		
	in. lin.	in. lin.	in. lin.	in. lin.
Length	16 0	13 9	13 0	12 0
Breadth of proximal end (in the axis of the neck)	6 0	5 5	4 10	5 0
Breadth (transverse) of distal end	6 3	5 10	5 2	5 3
Circumference of middle	7 9	7 1	6 1	6 8

* Perhaps not quite enough allowed

Dimensions of

	Din. giganteus.		Din. ingens.	
	t 1.	*t* E.	*t* 2.	*t* E 1.
	in. lin.	in. lin.	in. lin.	in. lin.
Length	35 0	35 0	29 0	28 9
Breadth of proximal end	7 6	7 0	6 2	6 6
Breadth of distal end	4 0	4 8	3 7	4 0
Circumference of middle	6 6	6 6	5 3	6 3
Fibular ridge extends down	13 0	13 0	12 0	12 0

Dimensions of

	Din. giganteus.		Din. ingens.	
			m E.	*Colenso.*
	m 1.	*m* E.	*v. robustus.*	
	in. lin.	in. lin.	in. lin.	in. lin.
Length	18 6	18 0	14 6	13 9
Circumference at the middle of the shaft	5 6	6 0	5 6	4 6
Breadth (transverse) of distal end	5 1*	6 0	5 6	4 6
Breadth of middle of shaft	1 11	2 2	1 10	1 7
Thickness or antero-posterior diameter of ditto	1 6	1 6	1 5	1 3
Breadth (transverse) of proximal end	0 0	4 6	4 3†	3 6

* The margins being broken and water-worn, I had not allowed sufficient for the entire bone.
‡ Perhaps not enough allowed for

Average Dimensions of Bones of *Dinornis* in

	Din. giganteus.	Din. ingens.	Ostrich.	Din. crassus.
	in. lin.	in. lin.	in. lin.	in. lin.
Length of femur	16 0	13 6	11 0	12 0
Circumference of ditto	7 3	6 10	5 3	6 8
Length of tibia	35 0	28 10	18 6	....
Circumference of ditto	6 6	6 0	4 3	....
Length of metatarsus	18 6	14 0	16 0	8 6
Circumference of ditto	5 6	5 0	3 7	4 8

OF THE BONES OF THE LEG.

the Femora.

Din. struthoides.		Din. casuarinus.		Din. dromioides.			Din. didiformis.			Din. curtus.	Din. otidiformis.
f 12.	*f Colenso.*	*f* 13.	*f* E.	*f* 6.	*f* 16.	*f Taylor.*	*f* 8.	*f* 7.	*f* 17.		*f* 10.
in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.
11 0*	12 0	9 6†	10 4	9 4‡	9 6	9 7	8 0	8 0	8 1	0 0	0 0
4 2	4 2	3 5†	3 11	3 6	3 6	3 6	2 10	3 0	3 3	0 0	0 0
4 3	4 4	3 9	4 4	3 7	3 7	3 8	3 3	3 2	3 6	0 0	0 0
5 6	5 6	5 0	4 9	4 1	4 0	3 10½	4 0	4 0	4 3	2 9	2 1

for mutilated extremities. † Ib. ‡ Ib.

the Tibiæ.

Din. crassus.	Din. struthoides.		Din. casuarinus.	Din. dromioides.	Din. didiformis.			Din. curtus.	Din. otidiformis.
					t 3.	*t* 8.	*t* 9.		*t* 11.
	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.
....	....	....	19 0	21 0	15 6	15 4	15 4	11 3	8 9
....	5 6	5 4	5 6	4 8	4 5	0 0	0 0	3 3	2 0
....	....	....	2 11	2 8	2 4	0 0	0 0	2 0	1 3
....	5 0	4 8	4 9	4 0	4 0	0 0	0 0	2 9	1 11
....	10 0	10 0	8 6	9 0	6 10	0 0	0 0	4 9	3 6

the Tarso-metatarsals.

Din. crassus.	Din. struthoides.		Din. casuarinus.	Din. dromioides.	Din. didiformis.		Din. curtus.	Din. otidiformis.
	m 3.	*m* E.						
in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	
8 6	12 0	11 6	8 0	10 5	7 0	6 10	5 0	
4 8	4 3	4 2	4 2	3 9	3 3	3 3	2 10	
4 0	4 0‡	4 5	3 10	3 4	....	3 0	2 5	
1 10	1 6	1 6	1 7	1 4	1 5	1 3	1 1	
1 2	1 1	1 1	0 10	0 10	0 9	0 9	0 7	
3 3½	....	3 5	3 0	2 10	....	2 3	1 11	

† With a ridge at the middle of inner condyle at proximal end.
water-worn margins of trochleæ.

comparison with those of existing *Struthionidæ*.

Din. struthoides.	Emeu.	Din. casuarinus.	Din. dromioides.	Din. didiformis.	Din. curtus.	Din. otidiformis.	Apteryx.
in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.	in. lin.
11 0	9 0	10 2	9 6	8 0	0 0	0 0	3 9
4 2	3 7	4 9	4 0	4 0	2 9	2 1	1 0
25 0	16 10	19 0	21 0	16 3	11 3	8 9	5 3
5 0	3 4	4 9	4 0	4 1	2 9	1 11	1 3
12 0	15 0	8 0	10 5	7 0	5 0	....	3 3
4 3	3 0	4 2	3 9	3 6	2 10	....	0 0

July 14, 1846.

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

Prof. Owen communicated, as an 'Appendix to his Memoir on the Dinornis,' some observations on the skull and on the osteology of the foot of the Dodo (*Didus ineptus*).

After a brief summary of the history of this remarkable extinct brevipennate Bird, in which the reduced highly finished figure by Savery, in his famous painting of 'Orpheus charming the Beasts,' now in the collection at the Hague, was particularly noticed; and the recent discovery of the skull of the Dodo amongst some old specimens in the Museum of Natural History at Copenhagen was mentioned, he proceeded to demonstrate the peculiarities of the Dodo's skull, by a comparison of the cast of the head of the bird in the Ashmolean Museum at Oxford with those of other recent and extinct species of Birds.

The Dodo's skull differs from that of any species of *Vulturidæ*, or any Raptorial Bird, in the greater elevation of the frontal bones above the cerebral hemispheres, and in the sudden sinking of the inter-orbital and nasal region of the forehead; in the rapid compression of the beak anterior to the orbits; in the elongation of the compressed mandibles, and in the depth and direction of the sloping symphysis of the lower jaw. The eyes of the Dodo are very small compared with those of the *Vulturidæ* or other *Raptores*. The nostrils, it is true, pierce the cere, but are more advanced in position; this however seems essentially to depend upon the excessive elongation of the basal part of the upper mandible before the commencement of the uncinated extremity; the nostrils are pierced near the commencement of this uncinated part as in the *Vulturidæ*, but are nearer the lower border of the mandible in the Dodo.

The resemblance between the skull of the Dodo and that of the Albatros is chiefly in the compression and prolongation of the curved mandibles: there are no traces in the Dodo of the hexagonal space on the upper surface of the cranium of the Albatros, so well defined there by the two supra-occipital ridges behind, the two temporal ridges at the sides, and the two converging posterior boundaries of the supra-orbital glandular fossæ in front. There is no sudden depression of the frontal region in the skull of the Albatros; the nostrils are near the upper surface of the basal third of the beak in the Albatros; and the Dodo's cranium is thrice as broad in proportion to the breadth of the mid-part of the mandible as in that of the Albatros.

More satisfactory evidence of the affinities of the Dodo was obtained from a comparison of the bones of the foot, which have recently

been very skilfully and judiciously exposed by the able Curator of the Ashmolean Museum.

The tarso-metatarsal bone most resembles in its thickness and general proportions that of the Eagles, especially the great Sea-Eagles (*Haliaëtus*); it is much stronger than the tarso-metatarsus of any of the *Vulturidæ*, or than that of the Cock, the *Crax*, or any of the *Gallinæ* or existing *Struthionidæ*; the stronger-footed species of *Dinornis* most resemble it in the general proportions of the tarso-metatarsus, but greatly differ in the particular configuration of the bone, and in the absence, or feebler indication, as in the subgenus *Palapteryx*, of the articulation for the metatarsal bone of the back-toe. The relative size of this bone is greater in the Dodo than in any other known bird. The Eagles make the nearest approach to it in this respect; as also in the shape of the hinder supplemental metatarsal, the breadth of its distal end, and its peculiar twist backwards and outwards, so as to form a bridge or pulley against which the flexor tendon of the hind-toe plays. This half-twist of the rudimental hind-metatarsus is feebly repeated in the *Gallinæ*, but the bone is much less expanded at its lower articular end, especially in the *Crax*; whilst the more typical *Gallinæ* are further distinguished from the Dodo by their spur.

The Apteryx is the sole existing Struthious bird which possesses the hind-toe; but it is very much smaller than in the Dodo, and the supporting metatarsal bone is devoid of the distal twist and expanded trochlea. The upper end of the tarso-metatarsus of the Dodo is remarkable for the great development of its calcaneal process, from which a strong ridge descends, gradually subsiding, half-way down the bone. The posterior surface of the calcaneal process is broad, triangular, vertically grooved and perforated at its base. In the Eagle the corresponding calcaneal process is a compressed, subquadrate ridge, whose base of attachment is not much longer than the obtuse end, and this is neither grooved nor perforated. In the *Cathartes Californianus* the calcaneal process is thicker than in the Eagle, shaped more like that of the Dodo, with a ridge descending upon the metatarsus, but it has a double groove behind.

In the Common Cock the calcaneal process more resembles that in the Dodo than the Vulture's does, but it is not so broad.

With regard to the first or proximal phalanx of the hind-toe, that of the *Haliaëtus* is larger and broader, especially at its base, stronger in proportion to its length, but longer in proportion to the sustaining metatarsus.

In the Vultures the proximal phalanx is not only longer in proportion to the metatarsus, but is more slender than in the Dodo. The same bone is also longer and more slender in proportion to the small supporting metatarsal bone in the Cock, the *Crax*, and all other *Gallinæ*; in fact, the Dodo is peculiar among Birds for the equality of length of the metatarsus and proximal phalanx of the hind-toe. With regard to the three trochlear extremities of the principal coalesced metatarsals, the middle one in all *Gallinæ* is longer in proportion than in the Dodo, in which the inner one is nearly as long

as the middle one, the outer one being the shortest. In the Eagle the inner division is of quite equal length with, or is longer than the middle trochlea; the proportions of the three trochleæ in the Vultures corresponding best with those in the Dodo. Another character by which the Dodo resembles the Vulture more than the Eagle is manifested by the proportions of the proximal phalanx of the second toe (innermost of the three anterior ones); this is very short, and is often anchylosed to the second phalanx in the Eagles: it is almost as long in the Vultures as in the Dodo.

Upon the whole, then, the Raptorial character prevails most in the structure of the foot, as in the general form of the beak, of the Dodo, compared with Birds generally; and the present limited amount of our anatomical knowledge of the extinct terrestrial Bird of the Mauritius would lead to support the conclusion that it is an extremely modified form of the Raptorial Order.

Devoid of the power of flight, it could have had small chance of obtaining food by preying upon the members of its own class; and if it did not exclusively subsist on dead and decaying organized matter, it most probably restricted its attacks to the class of Reptiles, and to the littoral fishes, Crustacea, &c.

The author concluded by recommending search to be made for bones of the Dodo in the superficial deposits, the alluvium of rivers, and the caves in the islands of Mauritius and Rodriguez; little doubting that an active exploration would be as richly rewarded as similar investigations have been in the islands of New Zealand, by the recovery of the remains of the great extinct species of terrestrial birds which formerly inhabited them.

Mr. Lovell Reeve then read a paper containing "Descriptions of forty new species of *Haliotis*, from the collection of H. Cuming, Esq.":—

The genus *Haliotis* affords an unusual abundance of novelty, from the circumstance of it never having been selected for the subject of an illustrated monograph; the species are, moreover, well-defined, and may be easily determined by a careful examination of the variations of sculpture and arrangement of colours.

The *Haliotides* are interesting in form as being the most evolved and depressed of spiral shells, and they have been arranged with the Chitons and Limpets as exhibiting the nearest apparent affinity with the non-spiral Gastropods. They present also a singularity of structure in great measure analogous to the orifice in the shell of *Fissurella* or to the fissure in *Emarginula*. On the left side of the shell, in a direct curve parallel to the inflexed edge, is a row of equidistant perforations, made by the animal in its progress of growth for conveying the water to the breathing organs; the mantle is slit in that direction to a certain extent, and the water passes into the respiratory cavity through a tubular filament protruding from each hole. The number of pallial filaments being alike in the same individual throughout its several stages of growth, the shell mostly presents the same number of holes at all ages, filling up the hindmost orifice as a new

one becomes formed at the margin. The *Siliquaria* presents a similar modification of structure, and it has been also considered that the slit in *Pleurotoma* is in some measure analogous.

The internal surface of the 'Ear Shells' is lined with a bright pearly nacre, which in most species is of remarkable iridescent brilliancy, glowing with all the colours of the rainbow; the attention must, however, be directed to the outer coating of the shell, for the discrimination of species, and it is with this view that the figures in the foregoing monograph are devoted mainly to external sculpture. There is certainly a striking variation of character in the nacre of different species, but the pattern of the inner surface is merely an indentation of the outer. The number of perforations varies in different species, but may be said to correspond in different individuals of the same species; where an exception occurs, it is that there is sometimes one, or at most two, less in the adult than in the young state; that is, when the animal arrives at maturity it continues to stop up one or two of the perforations in advance of any new one.

It is a curious circumstance in the geographical distribution of the *Haliotides*, that few, if any, are to be found where Chitons abound; as if they exchanged places to a certain extent in the two hemispheres. There are a few species from California, but along the western coast of South America, where Chitons are most abundant, not any are found, and only one small species, the *H. pulcherrima*, at any of the islands of the Pacific. They inhabit the coasts of China, Japan, Ceylon, Mozambique, Cape of Good Hope, Borneo, and the Philippine Islands; but the greater number of species, and the most remarkable, are from New Zealand and the continent of New Holland, displaying all the peculiarity of design which invariably characterizes the fauna of those isolated regions. With the well-known *Haliotis tuberculata* of the Channel Islands, all are familiar. It is, however, a circumstance worth noting, that although such near neighbours, and comparatively abundant, especially at the island of Jersey, it is rarely collected on the coast of England.

The *Haliotides* are found at low water, attached to the under surface of masses of stone, and they fix themselves with great force to the rocks, by suction, on the least alarm.

HALIOTIS SPLENDENS. *Hal. testâ ovatâ, convexo-depressâ, undique spiraliter liratâ, liris crebris regularibus subobtusis, nonnullis aliis latioribus; foraminibus quinis perviis, extus ærugini-viridescente, articulis albicantibus prope spiram interdum notatâ, epidermide fibroso fusco indutâ, intus cæruleo viridique, nigricante nebulatâ, pulcherrimè iridescente.*

Hab. California.

HALIOTIS JAPONICA. *Hal. testâ ovato-oblongâ, subplanulato-convexâ, liris tenuibus æqualibus spiraliter funiculatâ, concentricè rugoso-plicatâ, plicis conspicuis lamellæformibus irregularibus; foraminibus quinis senisve perviis; luteo olivaceo-fusco viridique undique pulcherrimè variegatâ.*

Hab. Japan; Dr. Siebold.

HALIOTIS COCCINEA. *Hal. testâ oblongo-ovatâ, spiraliter liratâ, liris creberrimis inæqualibus interstitiis transversim minutissimè striatis; foraminibus confertiusculis, quinis senisve perviis; extus coccineo-rufâ, lutescente-albo maculatâ et variegatâ, intus argenteo-albicante.*

Hab. Cape de Verd Islands.

HALIOTIS ZICZAC. *Hal. testâ ovatâ, planulato-convexâ, spiraliter subtilissimè sulcatâ, foraminibus parviusculis, senis perviis; olivaceo-viridi, luteo-viridescente obliquè flammeo-undatâ, apice luteo-aurantio tinctâ, intus argenteâ, iridescente.*

Hab. Calipan, island of Mindoro, Philippines (found on smooth stones); Cuming.

HALIOTIS MULTIPERFORATA. *Hal. testâ oblongo-ovatâ, subflexuosâ, anfractuum parte spirali subelevatâ; spiraliter lineari-sulcatâ, sulcis subundatis irregularibus; foraminibus parviusculis numerosis, decenis perviis; extus nigricante-fusco viridique variegatâ, intus albicante.*

Hab. ——?

HALIOTIS DISCUS. *Hal. testâ oblongo-ovatâ, elevato-convexâ, hic illic tumidâ et rugosâ, latere sinistro lato, peculiariter erecto; foraminibus amplis, subdistantibus, tubiferis, quaternis tantum perviis; castaneo-fuscâ, viridi aut rufescente radiatim tinctâ.*

Hab. Japan; Dr. Siebold.

HALIOTIS SIEBOLDII. *Hal. testâ subobliquè ovatâ, subpectinatâ, valdè convexâ, apice terminali, vix spirali; radiatim liratâ, liris obtusis, subdistantibus; foraminibus subamplis, quinis perviis; extus aurantio-rubrâ, intus albicante, iridescente.*

Hab. Japan; Dr. Siebold.

HALIOTIS SQUAMATA. *Hal. testâ oblongo-ovatâ, convexâ, spiraliter liratâ, liris creberrimis, squamatis, alternis majoribus; foraminibus octonis perviis; fuscâ et rubro-fuscâ, flammulis lutescentibus undatis ornatâ, intus vividè iridescente.*

Hab. North-west coast of Australia; Dring, H.M.S. Beagle.

HALIOTIS FUNEBRIS. *Hal. testâ ovatâ, subdepresso-convexâ, spiraliter liratâ, liris subsquamatis, hic illic majoribus, transversim peculiariter rugoso-plicatâ; foraminibus octonis aut novenis perviis; rubido-castaneâ, interdum viridi tinctâ, flammis perpaucis indistinctis circa spiram.*

Hab. New Holland.

HALIOTIS DIVERSICOLOR. *Hal. testâ ovatâ, subplanulatâ, spiraliter liratâ, liris obtusis irregularibus, transversim leviter plicatâ; foraminibus octonis vel novenis perviis; castaneo-fusco coccineo-rufo viridique radiatâ, maculis undatis lutescentibus variegatâ.*

Hab. New Holland.

HALIOTIS COCCORADIATA. *Hal. testâ suborbiculari, ovatâ, plano-*

convexâ, medio leviter depressâ, spiraliter subtiliter liratâ, liris striis minutis elevatis decussatis, foraminibus senis perviis; flavidâ, strigis latis vividè coccineis radiatim pictâ.
Hab. —— ?

HALIOTIS VIRIDIS. *Hal. testâ ovatâ, depresso-convexâ, obliquè undato-rugatâ, spiraliter liratâ, lirarum interstitiis striatis, foraminibus quinis perviis; extus albicante, viridi pulcherrimè tinctâ et marmoratâ, intus argentea.*
Hab. —— ?

HALIOTIS ASTRICTA. *Hal. testâ ovatâ, convexâ, spiraliter liratâ, liris laminis striisque elevatis irregularibus radiatim decussatis; foraminibus quaternis perviis; extus albidâ, olivaceo viridique marmoratâ, intus iridescente.*
Hab. —— ?

HALIOTIS TAYLORIANA. *Hal. testâ oblongo-ovatâ, solidiusculâ, convexâ, spirâ subterminali, spiraliter obtusè et irregulariter liratâ; foraminibus septenis ad novenis perviis; extus coccineo-fuscâ, flavido, coccineo-fusco maculato, prope spiram, nebulatâ; intus albicante.*
Hab. —— ?

Named in honour of my worthy friend Thomas Lombe Taylor, Esq., of Starston, Norfolk.

HALIOTIS RUBIGINOSA. *Hal. testâ ovatâ, subdepresso-convexâ, radiatim plicato-rugosâ, spiraliter liratâ, liris obtusè squamatis, foraminibus subapproximatis, senis perviis; extus rubiginoso-aurantiâ, spiraliter albi-strigatâ, intus argentea.*
Hab. —— ?

HALIOTIS RUGOSA. *Hal. testâ ovatâ, convexâ, medio leviter depressâ, radiatim plicato-rugosâ, spiraliter liratâ, liris obtusis, hic illic majoribus; foraminibus subamplis, quaternis perviis; extus olivaceo-fusco viridique marmoratâ.*
Hab. —— ?

HALIOTIS ROSACEA. *Hal. testâ ovatâ, convexo-depressâ, spiraliter crebriliratâ, liris striis exsculptis undique decussatis; foraminibus peculiariter oblongo-ovatis, quaternis perviis; extus corallo-rubro et roseo-albicante marmoratâ, rubro viridi punctato.*
Hab. —— ?

HALIOTIS PERTUSA. *Hal. testâ oblongo-ovatâ, spiraliter posticè subtilissimè sulcatâ, sulcis pertusis, anticè exiliter liratâ, sulcis lirisque subirregularibus et undatis; foraminibus senis perviis; extus rufo-fuscâ, strigis perpaucis lutescentibus undatis prope spiram, intus vividè iridescente.*
Hab. —— ?

HALIOTIS PLANILIRATA. *Hal. testâ ovatâ, plano-convexâ, spiraliter liratâ, liris planulatis irregularibus; foraminibus quinis perviis; olivaceo- et cœruleo-viridi.*
Hab. —— ?

HALIOTIS SCUTULUM. *Hal. testâ convexâ, spirâ depressâ, subocculta, spiraliter exiliter liratâ, liris planulatis, undulatis, hic illic majoribus; foraminibus senis perviis; olivaceo-fuscâ, viridi pulcherrimè articulatâ, punctatâ et maculatâ.*
Hab. —— ?

HALIOTIS ZEALANDICA. *Hal. testâ oblongo-ovatâ, subdepressâ, spiraliter irregulariter sulcatâ, liris intermediis obtusis, nunc latis, nunc angustis, senis perviis; rufo-castaneâ et albicante peculiariter marmoratâ.*
Hab. New Zealand.

HALIOTIS SPECIOSA. *Hal. testâ oblongo-ovatâ, plano-convexâ, medio depressâ, spiraliter elevato-striatâ, striis confertis; foraminibus senis perviis; coccineo-rufâ albo-nigricante marginatâ, pulcherrimè variegatâ.*
Hab. —— ?

HALIOTIS RETICULATA. *Hal. testâ oblongo-ovatâ, anticè subattenuatâ, plano-convexâ, medio depressâ, latere sinistro latiusculo, erecto, spiraliter vix striatâ; foraminibus quaternis perviis; sordidè fuscâ, maculis albidis reticulatis subtriangularibus ornatâ.*
Hab. —— ?

HALIOTIS NEBULATA. *Hal. testâ oblongo-ovatâ, convexâ, spirâ subelevatâ, spiraliter sulcatâ, sulcis parvis, undatis; foraminibus subapproximatis, septenis perviis; fusco roseoque undique nebulatâ.*
Hab. —— ?

HALIOTIS SPICULATA. *Hal. testâ ovatâ, spiraliter peculiariter liratâ, liris angustis, erectis, valdè irregularibus, radiatim undato-plicatâ; foraminibus amplis, senis perviis; olivaceo-viridi, hic illic albipunctatâ.*
Hab. —— ?

HALIOTIS SEMISTRIATA. *Hal. testâ ovatâ, spiraliter subtiliter liratâ, radiatim undato-plicatâ et plus minusve tuberculosâ; foraminibus subtubiferis, quinis perviis; fuscâ aut coccineo-rufâ, albimaculatâ.*
Hab. Ceylon; Dr. Sibbald.

HALIOTIS CLATHRATA. *Hal. testâ semicirculari-ovatâ, spiraliter crebriliratâ, interstitiis striis subtilissimè clathratis, radiatim plicatâ; foraminibus subamplis, quinis perviis; viridi et vividè rufo variegatâ.*
Hab. Baclayon, island of Bohol, Philippines; Cuming.

HALIOTIS STOMATIÆFORMIS. *Hal. testâ oblongo-ovatâ, valdè convexâ, spiraliter striatâ, radiatim subtiliter plicatâ, spirâ subterminali, elevatâ; foraminibus quinis perviis; olivaceo viridique marmoratâ.*
Hab. New Zealand.

HALIOTIS ANCILE. *Hal. testâ ovatâ, regulariter convexâ, spiraliter*

exiliter noduloso-striatâ, nodulis interdum subobscuris interruptis; foraminibus numerosis, parvis, octonis perviis; olivaceo-viridi, nodulis et circa spiram cupreo-roseis.
Hab. —— ?

HALIOTIS DRINGII. *Hal. testâ orbiculari-ovatâ, spiraliter striatâ, radiatim plicatâ et tuberculosâ; foraminibus subtubiferis, quaternis perviis; extus pallidè viridescente-luteâ, medio conspicuè coccineo tinctâ, intus argenteâ.*
Hab. North coast of Australia.

HALIOTIS CONCINNA. *Hal. testâ suboblongo-ovatâ, spiraliter striatâ, medio leviter tuberculatâ, obliquè subobscurè plicatâ; foraminibus quaternis perviis; carneo-albicante, coccineo-roseo profusè variegatâ.*
Hab. Zamboanga, island of Mindanao, Philippines; Cuming.

HALIOTIS GEMMA. *Hal. testâ suborbiculari-ovatâ, plano-convexâ, latere sinistro latiusculo, spiraliter subtuberculatâ, radiatim pulcherrimè minutè plicato-squamatâ; foraminibus subtubiferis, quaternis quinisve perviis; flavescente, coccineo viridique tinctâ.*
Hab. —— ?

HALIOTIS LAUTA. *Hal. testâ ovatâ, anticè attenuatâ, undato-tumidâ, spiraliter liratâ, liris subtilibus, confertis, striis minutis decussatis; foraminibus subamplis, quinis perviis; rubido et flavescente-albidâ irregulariter marmoratâ.*
Hab. Swan River Settlement, New Holland; Lieut. Preston.

HALIOTIS PAPULATA. *Hal. testâ suborbiculari-ovatâ, spiraliter obtuso-liratâ, liris subdistantibus, conspicuè tuberculatis; foraminibus subtubiferis, quaternis perviis; corallo-rubrâ, flavescente variâ.*
Hab. North coast of Australia; Dring.

HALIOTIS JACNENSIS. *Hal. testâ oblongo-ovatâ, spiraliter peculiariter rudè liratâ, liris valdè irregularibus, subsquamosis, prope foramina sublævigatâ; foraminibus subtubiferis, distantibus; rufescente-aurantiâ, intus argenteâ.*
Hab. Jacna, island of Bohol, Philippines.

HALIOTIS PUSTULATA. *Hal. testâ oblongo-ovatâ, spiraliter obscurè liratâ, tuberculis parvis pustulatâ, radiatim plicatâ; foraminibus senis perviis; albidâ viridique marmoratâ.*
Hab. —— ?

HALIOTIS AQUATILIS. *Hal. testâ oblongo-ovatâ, plano-convexâ, medio depressâ, lævigatâ, prope marginem peculiariter plicatâ; foraminibus senis perviis; pallidè viridi, albido aut flavescente undato-variegatâ, intus albicante.*
Hab. Kurile Islands, south of Kamtschatka.

HALIOTIS JANUS. *Hal. testâ oblongo-ovatâ, spiraliter liratâ, liris subtilibus angustis, interstitiis excavatis; foraminibus senis per-*

viis; luteo-aurantiâ, fasciâ latâ albidâ, fusco grandimaculatâ, prope foramina ornatâ.
Hab. ——?

HALIOTIS CRUENTA. *Hal. testâ ovatâ, anticè subattenuatâ, spirâ elevatiusculâ, spiraliter peculiariter undato- et corrugato-striatâ; foraminibus subapproximatis, octonis perviis, sanguineo albipunctato et albido sanguineo-punctato pulcherrimè variegatâ.*
Hab. New Zealand.

HALIOTIS INCISA. *Hal. testâ ovatâ, medio subdepressâ, spiraliter incisâ, subtuberculiferâ; foraminibus amplis, quaternis perviis; albidâ et purpureo-viridi marmoratâ, albido minutissimè rufo-punctatâ.*
Hab. ——?

The next paper was also communicated by Mr. Lovell Reeve, and contained "Descriptions of fifty-four new species of *Mangelia*, from the collection of H. Cuming, Esq.":—

The *Mangeliæ* are nearest allied to those aberrant species of *Pleurotoma* in which the predominant character of that genus, the fissure in the upper extremity of the lip, becomes modified into a somewhat obscure sinus. Their general aspect is that of a more or less fusiform *Marginella*, without plaits or polished exterior; distinguished, on the other hand, by a row of faint wrinkle-like denticulations on the inner surface of the lip and columella, and a gutter-like sinus in the lip at its junction with the body-whorl.

MANGELIA SICULA. *Mang. testâ subfusiformi, spirâ acuminatâ, anfractibus rotundatis, gibbosiusculis, concentricè costatis, lævibus; aperturâ brevi, ovatâ, sinu subconspicuo; intus extusque castaneo-fuscâ, labro flavicante, fusco-lineato.*
Hab. Sicily.

MANGELIA VEXILLUM. *Mang. testâ oblongo-ovatâ, anfractibus supernè depressis, nodosis, costis e nodis descendentibus, superficie totâ decussatim striatâ, quasi subtilissimè decussatâ; aurantio-lutea, fasciis albicantibus angustis undique cingulatâ.*
Hab. Ilo Ilo, isle of Panhay, Philippines (found under stones); Cuming.

MANGELIA LYRA. *Mang. testâ trigono-fusiformi, anfractibus supernè angulatis, longitudinaliter costatis, costis subobliquis, ad angulum incrassatis; castaneo-fuscâ, lineis albicantibus decussatis, labro albicante.*
Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA ANTILLARUM. *Mang. testâ subpyriformi-ovatâ, lævigatâ, longitudinaliter concentricè costatâ, costis fortibus, subobtusis, distantibus; cinereo-carneâ, costis fasciâ rubidâ tinctis, labro albicante, rubido fasciatim tincto.*
Hab. West Indies.

MANGELIA MARGINELLOIDES. *Mang. testâ pyriformi-ovatâ, spirâ brevi, acutâ; anfractibus supernè angulatis, longitudinaliter multicostatis, costis tenuibus, crebris, suturis descendentibus; lacteo-cæruleâ aut cinereo-fuscâ, lineis rubidis cingulatâ, anfractûs ultimi parte supra angulum maculâ grandi nigricante conspicuè tinctâ.*

Hab. Island of Burias, Philippines (found in sandy mud at the depth of seven fathoms); Cuming.

MANGELIA FUNICULATA. *Mang. testâ trigono-fusiformi, subelongatâ, anfractibus supernè depressis, longitudinaliter tenuicostatis, lævibus; cinereo-fuscâ, costis labroque albicantibus.*

Hab. Islands of Ticao and Masbate, Philippines (found on the sands); Cuming.

MANGELIA CAVERNOSA. *Mang. testâ oblongo-ovatâ, spirâ angulato-turritâ; anfractibus supernè angulatis, intra costis cavernosis, costis fortibus, obtusis, suturis descendentibus; albâ, aurantio-fusco hic illic sparsim maculatâ.*

Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA CYLINDRICA. *Mang. testâ cylindraceo-fusiformi, apice acutâ, longitudinaliter subtiliter costatâ, transversim elevato-striatâ; pellucido-albâ, fuscescente tinctâ, aurantio-fusco infra suturas maculatâ.*

Hab. Cagayan, island of Mindanao, Philippines (found in sandy mud at the depth of twenty-five fathoms); Cuming.

MANGELIA CAPILLACEA. *Mang. testâ ovato-fusiformi; spiræ suturis profundis; anfractibus supernè depressis, transversim subtilissimè et creberrimè elevato-striatis, longitudinaliter costatis, angustis, suberectis, supernè leviter mucronatis; fuscescente, lineis subtilibus fuscescentibus zonatâ.*

Hab. Island of Burias, Philippines (found among coarse sand at the depth of seven fathoms); Cuming.

MANGELIA GRACILIS. *Mang. testâ gracili-fusiformi, transversim subtilissimè striatâ, longitudinaliter costatâ, costis angustis; albâ, castaneo-fusco indistinctè zonatâ et maculatâ.*

Hab. Island of Ticao, Philippines (found under stones at low water); Cuming.

MANGELIA LAMELLATA. *Mang. testâ fusiformi-ovatâ, spiræ suturis profundis, subcavernosis, anfractibus transversim elevato-striatis, striis fortibus, subdistantibus, longitudinaliter costatis, costis angustis, erectis, lamellæformibus, supernè leviter mucronatis; albidâ, fusco pallidissimè zonatâ.*

Hab. Isle of Burias, Philippines (found among coarse sand at the depth of seven fathoms); Cuming.

MANGELIA VITTATA. *Mang. testâ oblongo-ovatâ, subconicâ, spirâ brevi, obtusâ; anfractibus longitudinaliter costatis, costarum in-*

terstitiis striis fortibus clathratis; albidâ, olivaceo-fusco latifasciatâ, costarum parte olivaceo-fuscâ albipunctatâ.

Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA ZONATA. *Mang. testâ abbreviato-fusiformi, spirâ breviusculâ, turritâ suturis profundis; anfractibus longitudinaliter costatis, costis e suturis descendentibus; lævigatâ; albâ, zonâ conspicuâ aurantio-fuscâ cingulatâ.*

Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA INTERRUPTA. *Mang. testâ oblongo-ovatâ, spirâ brevi, anfractibus supernè nodosis, costis e nodis descendentibus; albâ, lineis nigris subtilissimis transversis interruptis, creberrimè dispositis, inter costas ornatâ.*

Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA RETICULATA. *Mang. testâ fusiformi-ovatâ, spirâ breviusculâ, apice acuminatâ; anfractibus supernè perpendiculariter compressis, deinde tumidiusculis et longitudinaliter costatis, costarum interstitiis exiliter fusco-punctatis.*

Hab. Island of Ticao, Philippines (found on the reefs); Cuming.

MANGELIA PULCHELLA. *Mang. testâ fusiformi-ovatâ, subcylindraceâ, spirâ breviusculâ, apice acuminatâ; anfractibus supernè rotundatis, longitudinaliter multicostatis, costis tenuibus gracilibus, concentricè dispositis, anfractuum superficie totâ exilissimè reticulatâ; luteo-albicante, maculis quadratis parvis rufis costarum interstitiis fasciatim cingulatâ.*

Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA FUSIFORMIS. *Mang. testâ fusiformi, anfractibus supernè subangulatis, ad angulum nodosis, costis tenuibus subsuperficiariis e nodis descendentibus, transversim creberrimè striatis; luteo-albicante, punctis perpaucis aurantio-fuscis tinctâ.*

Hab. Island of Corrigidor, Philippines (found among coarse sand at the depth of ten fathoms); Cuming.

MANGELIA LYRICA. *Mang. testâ fusiformi, utrinque acuminatâ, anfractibus longitudinaliter concentricè costatis, transversim elevato-striatis; fuscescente, aurantio-fusco pallidè et indistinctè fasciatâ.*

Hab. Island of Burias, Philippines (found among coarse sand at the depth of seven fathoms); Cuming.

MANGELIA GIBBOSA. *Mang. testâ ovato-conicâ, spirâ brevissimâ; anfractibus supernè gibbosis et nodulosis, longitudinaliter costatis, lævigatis; cinereo-albicante, lineis aurantio-fuscis exilibus cingulatâ, dorso supernè nigricante tincto.*

Hab. Island of Ticao, Philippines (found on the reefs); Cuming.

MANGELIA MACULATA. *Mang. testâ subfusiformi, basi truncatâ, longitudinaliter costatâ, costis tenuibus subdistantibus, concentricè dispositis; sinu latiusculo; albâ, maculis subquadratis aurantio-fuscis inter costas.*

Hab. Island of Ticao, Philippines (found under stones at low water); Cuming.

MANGELIA TURRICULA. *Mang. testâ fusiformi-turritâ, suturis profundis; anfractibus plano-depressis, longitudinaliter concentricè costatis; albicante, lineis subtilissimis aurantio-fuscis obsoletè cingulatâ.*
Hab. Island of Ticao, Philippines (found on the sands); Cuming.

MANGELIA COLUMBELLOIDES. *Mang. testâ ovatâ, spirâ brevi, acutâ; anfractibus supernè leviter rotundatis, transversim elevato-striatis, longitudinaliter tenuicostatis, labro medio tumido, intus fortiter denticulato; niveâ, costis eximiè aurantio-fusco punctatis.*
Hab. Baclayon, island of Bohol, Philippines (found on mud banks); Cuming.

MANGELIA CONOHELICOIDES. *Mang. testâ ovato-conicâ, spirâ brevissimâ, acutâ; anfractibus transversim elevato-striatis, longitudinaliter multiliratis, liris tenuibus, ante suturas evanidis; luteo-albicante, dorso maculâ grandi aurantio-fuscâ interdum tincto.*
Hab. Daleguete, isle of Zebu, Philippines (found under stones); Cuming.

MANGELIA TENEBROSA. *Mang. testâ subfusiformi, spirâ acuminato-turritâ; anfractibus supernè plano-depressis, suturis profundis, transversim striatis, longitudinaliter costatis, costis distantibus; intus extusque castaneo-fuscâ.*
Hab. Cagayan, island of Mindanao (found in sandy mud at the depth of twenty-five fathoms); Cuming.

MANGELIA NOVÆ HOLLANDIÆ. *Mang. testâ ovatâ, infernè attenuatâ, subconicâ, spirâ brevi; anfractibus supernè rotundatis, longitudinaliter obliquè costatis; livido-cineréâ, apice basique nigricantibus, labro albido, aperturæ fauce fuscâ.*
Hab. Swan River.

MANGELIA LIVIDA. *Mang. testâ subfusiformi-ovatâ, apice acuminatâ; anfractibus longitudinaliter concentricè costatis, costis tenuibus; livido-carneâ.*
Hab. Island of Ticao, Philippines (found on the reefs); Cuming.

MANGELIA ABYSSICOLA. *Mang. testâ oblongo-ovatâ, utrinque conspicuè attenuatâ, longitudinaliter costatâ, lineis elevatis cingulatâ; albidâ, fusco zonatâ.*
Hab. Island of Mindanao, Philippines (found in sandy mud at the depth of twenty-five fathoms); Cuming.

MANGELIA BICOLOR. *Mang. testâ oblongâ, concentricè costatâ, costarum interstitiis subtilissimè striatis; supra albidâ, infra plumbeâ.*
Hab. Island of Ticao, Philippines; Cuming.

MANGELIA FUNEBRIS. *Mang. testâ oblongâ, concentricè costatâ,*

costarum interstitiis lævibus; albidâ fasciatâ plumbeâ latâ cingulatâ.
Hab. Island of Ticao (found under stones at low water); Cuming.

MANGELIA STROMBOIDES. *Mang. testâ fusiformi-ovatâ, spirâ subturritâ; anfractibus supernè angulatis, longitudinaliter costatis, costis ad angulum nodosis, interstitiis subtilissimè striatis; albidâ.*
Hab. Island of Bohol, Philippines.

MANGELIA PALLIDA. *Mang. testâ ovatâ, concentricè costatâ, costis subobtusis; albâ.*
Hab. Island of Ticao, Philippines; Cuming.

MANGELIA PESSULATA. *Mang. testâ cylindraceo-oblongâ, spirâ breviusculâ, longitudinaliter eximiè subobliquè costatâ, costarum interstitiis subtilissimè striatis; niveâ.*
Hab. Philippine Islands; Cuming.

MANGELIA RIGIDA. *Mang. testâ ovatâ, longitudinaliter fortiter tuberculato-costatâ, transversim subtilissimè striatâ; fuscescente.*
Hab. Ægean Sea; Forbes.

MANGELIA ELEGANS. *Mang. testâ oblongâ, spirâ breviusculâ, acuminatâ, anfractibus supernè angulatis, longitudinaliter costatis, costis angustis, ad angulum mucronatis, costarum interstitiis pulcherrimè elevato-striatis; lutescente-albâ, exilissimè fusco-zonatâ.*
Hab. Island of Mindoro, Philippines; Cuming.

MANGELIA LINEATA. *Mang. testâ ovatâ, spirâ acuminatâ; concentricè obtuso-costatâ, lævigatâ; carneo-fuscescente, lineis saturatioribus undique cingulatâ.*
Hab. ——?

MANGELIA PLANILABRUM. *Mang. testâ fusiformi, utrinque acuminatâ, lævissimâ, anfractibus supernè depressis, longitudinaliter costatis; labro planulato, supra subangulato; cinereo-purpurascente, albizonato.*
Hab. Island of Ticao, Philippines; Cuming.

MANGELIA HORNBECKII. *Mang. testâ ovatâ, spirâ breviusculâ, acutâ, suturis profundis, subcavernosis, longitudinaliter costatâ, costis prominentibus, transversim subtilissimè striatâ, albâ.*
Hab. Island of St. Thomas, West Indies; Dr. Hornbeck.

MANGELIA CASTANEA. *Mang. testâ oblongâ, spirâ acuminatâ, concentricè tenuicostatâ, costarum interstitiis striatis; castaneo-fuscâ.*
Hab. Island of Burias, Philippines; Cuming.

MANGELIA PUSILLA. *Mang. testâ fusiformi-ovatâ, lævigatâ, longitudinaliter costatâ, costis solidiusculis obtusis; albidâ, castaneo copiosè tinctâ et lineatâ.*
Hab. ——?

MANGELIA MARMOROSA. *Mang. testâ ovatâ, solidiusculâ, spirâ breviusculâ; longitudinaliter costatâ, costis obesis, striis elevatis, decussatis; sinu amplo; albâ, aurantio-fusco perparce maculatâ.*
Hab. —— ?

MANGELIA CASTA. *Mang. testâ ovato-turritâ, longitudinaliter costatâ, costis tenuibus subdistantibus, lævigatâ; aperturâ brevi, basi truncatâ; carneo-fuscâ, obscurè fasciatâ, costis albicantibus.*
Hab. —— ?

MANGELIA OBELISCUS. *Mang. testâ subulatâ, hexagonâ, basi truncatâ, striis pulcherrimis elevatis undique creberrimè cingulatâ, longitudinaliter costatâ, costis distantibus, sequentibus; aperturâ minutâ, ovatâ; sordidè albâ, aperturæ fauce lutescente.*
Hab. Islands of Corrigidor, Philippines (found among coarse sand at the depth of ten fathoms); Cuming.

MANGELIA BALTEATA. *Mang. testâ elongatâ, subfusiformi, longitudinaliter costatâ costis angustis, distantibus; albâ, zonâ fuscâ conspicuâ cingulatâ.*
Hab. —— ?

MANGELIA ASTRICTA. *Mang. testâ subfusiformi-ovatâ, spirâ breviusculâ, suturis profundis; longitudinaliter costatâ, costis crebriusculis; albidâ, zonâ fuscâ angustâ cingulatâ.*
Hab. —— ?

MANGELIA BADIA. *Mang. testâ fusiformi-ovatâ, concentricè plicato-costatâ, transversim fortiter striatâ; castaneo-fuscâ.*
Hab. —— ?

MANGELIA PELLUCIDA. *Mang. testâ ovatâ, utrinque attenuatâ, lævigatâ, pellucidâ, nitidâ, longitudinaliter crebricostatâ; albidâ, basi fuscâ.*
Hab. —— ?

MANGELIA ANGULATA. *Mang. testâ fusiformi-ovatâ, anfractibus medio peculiariter angulatis, suturis profundis, longitudinaliter costatis, costis angulos super mucronatis; albidâ, fuscescente lineatâ.*
Hab. Bay of Manila (found in sandy mud at the depth of four fathoms); Cuming.

MANGELIA PURA. *Mang. testâ oblongo-ovatâ, spirâ subturritâ, suturis profundis; anfractibus concentricè costatis; albidâ, maculis perpaucis aurantio-fuscis.*
Hab. —— ?

MANGELIA SOLIDA. *Mang. testâ cylindraceo-ovatâ, utrinque attenuatâ, solidâ, undique creberrimè granoso-clathratâ; aperturâ longiusculâ; purpurascente.*
Hab. Island of Burias, Philippines (among sand at the depth of seven fathoms); Cuming.

MANGELIA DERELICTA. *Mang. testâ ovatâ, longitudinaliter fortiter concentricè costatâ, transversim subobsoletè striatâ; fuscescente.*
Hab. —— ?

MANGELIA ZEBUENSIS. *Mang. testâ ovato-oblongâ, spirâ acuminatâ, basi subattenuatâ, concentricè fortiter costatâ, transversim creberrimè striatâ; fuscescente.*

Hab. Island of Zebu, Philippines (found in sandy mud at the depth of four fathoms); Cuming.

MANGELIA CINCTA. *Mang. testâ subfusiformi-ovatâ, spirâ turritâ, suturis subprofundis; anfractibus supernè angulatis, longitudinaliter costatis, costis distantibus; albidâ, anfractibus fasciâ latâ fuscescente supernè cinctis.*

Hab. Island of Bohol, Philippines (found under stones at low water); Cuming.

MANGELIA DIGITALIS. *Mang. testâ fusiformi-ovatâ, solidâ, undique creberrimè granoso-clathratâ; albicante, zonis duabus purpureis angustis cingulatâ.*

Hab. —— ?

MANGELIA NANA. *Mang. testâ, ovatâ, spirâ brevi, turritâ, apice acutâ; anfractibus supernè angulatis, longitudinaliter obliquè costatis, interstitiis cavis, subtiliter striatis.*

Hab. Island of Mindanao, Philippines (found in sandy mud at the depth of twenty-five fathoms); Cuming.

July 28, 1846.

No business was transacted.

August 11, 1846.

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

A letter was read, addressed to the Secretary by Sir Robert Heron, Bart., M.P., and containing the following observations in reference to the Curassows in his menagerie:—"It appears to me that the different species of the *Crax* are not well-defined. I had a male black and a female brown, which bred for three years, always producing two, which were always a black male and a brown female. I have now a pair black, with yellow bills, and from their eggs I have a brown young one: there can be no doubt of the parentage, as I have only one other *Crax*, which is also black, with a black bill."

A letter from the Society's Corresponding Member, Lieut. Fayrer, R.N., dated Bermuda, July 11, 1846, was also read. It accompanied some specimens of the "Bische de Mer" or Trepang, which Lieut. Fayrer states is to be found on the reefs round those islands in vast quantities, and probably of various kinds.

The next paper read contained descriptions of six new species of birds, by John Gould, Esq.:—

TROGON ASSIMILIS. Mas. *Trog. vertice, corpore superiore, et pectore aureo-viridibus; loro, auribus, guldque nigris; rectricibus intermediis duabus aureo-fuscis, viridè tinctis; pogoniis lateralium duarum his proximarum utrinque externis virido-fuscis aureo splendentibus, internis autem, apicibusque, nigris; nigris quoque rectricibus externis, modo marginibus pogoniarum fasciis albis tenuibus transversim ornatis; alis nigris, tectricibus et secondariis lineis lætè griseis transversè flexuosis delicatissimè pictis.*

Male.—Crown of the head, all the upper surface and chest rich golden green; lores, ear-coverts and throat black; two middle tail-feathers golden greenish brown, tipped with black; the two next on each side have the inner web and tip black, and the outer web golden greenish brown; outer feathers black, crossed for a short space on either side the web by very fine irregular bars, and largely tipped with white; wings black, the coverts and secondaries finely penciled with irregular zigzag markings of light grey; primaries margined externally with light grey; abdomen and under surface fine scarlet, separated from the green of the chest by a narrow crescent of white; bill orange-yellow; feet yellowish brown.

Female.—Head, chest and upper surface brown; two middle tail-feathers dull chestnut-brown, tipped with black; the two next on

each side black on their inner webs and at the tip, and dull chestnut-brown on their outer webs; the remaining feathers black on their inner webs at the base, largely tipped with white, the intermediate portion crossed by alternate irregular bars of black and white; wings as in the male, but with the coverts and secondaries freckled with yellowish brown instead of grey; ear-coverts black; under surface scarlet, separated from the brown of the chest by a crescent of white; bill and feet yellowish brown.

Total length, 10 inches; bill, 1; wing, 5; tail, 6; tarsi, $\frac{5}{8}$.

Hab. Peru.

Remark.—Nearly allied to *Trogon personata*, but differing from that species in the tail being nearly black, in the transverse markings being very slight and in the extremities more largely tipped with white; the freckled markings of the wing are also much more minute.

Cinclosoma cinnamomeus. *Cinc. toto superiore corpore, scapularibus, rectricibus duabus intermediis, pectore ad latera, et lateribus cinnamomeis; alarum tectricibus nigris, plumis singulis ad apices albis; lineâ superciliari indistinctè albâ; gulâ loroque nitidè nigris; magnâ ovatâ maculâ infra oculum, et corpore inferiore albis; pectore maynâ maculâ nitidè nigrâ, formâ tanquam sagittæ, signatâ.*

The whole of the upper surface, scapularies, two central tail-feathers, sides of the breast and flanks cinnamon-brown; wing-coverts jet-black, each feather largely tipped with white; above the eye a faint stripe of white; lores and throat glossy black, with a large oval patch of white seated within the black, beneath the eye; under surface white, with a large arrow-shaped patch of glossy black on the breast; feathers on the sides of the abdomen with a broad stripe of black down the centre; lateral tail-feathers jet-black, largely tipped with pure white; under tail-coverts black for four-fifths of their length on the outer web, their inner webs and tips white; eyes brown; tarsi olive; toes black.

Total length, $7\frac{1}{2}$ inches; bill, $\frac{7}{8}$; wing, $3\frac{3}{4}$; tail, $3\frac{1}{4}$; tarsi, $1\frac{1}{8}$.

Hab. South Australia. Shot by Capt. Sturt at the Depôt, lat. 29° 40′, June 9, 1845.

This fine new species, discovered by the enterprising traveller Sturt, is of peculiar interest, as being one of the few inhabitants of the sterile and inhospitable interior of Australia, and as forming the third species of the genus known to belong to that portion of the globe; it is considerably smaller than either of its congeners, and also differs from them in the beautiful cinnamon colouring of the upper surface. It now forms part of the national collection at the British Museum.

Ramphastos Inca. Fœm. *Ramph. nigra; rostro nigro, in lateribus sanguineo obnubilato; culmine mandibulæ superioris ad apicem, et latâ fasciâ basali flavis, hac posticè lineâ nigrâ, anticè lineâ coccineâ cinctâ; gulâ et pectore albis flavitinctis, hoc torque sanguineo infra succincto; tectricibus caudæ inferioribus aurantiacis.*

Bill black, clouded on the sides with blood-red, with the culmen

and point of the lower mandible yellow, and with a broad basal belt of the same colour, bounded posteriorly with a narrow line of black, and anteriorly with a narrow line of scarlet; the yellow clouded with olive on the lower mandible; naked skin round the eye purple, passing into yellow on its outer margin; irides brown; legs and feet bluish lead-colour; general plumage black; throat and chest white, tinged with yellow, and bounded below by a band of blood-red; upper tail-coverts rich orange; under tail-coverts blood-red.

Total length, 20 inches; bill, 5½; wing, 9¼; tail, 7; tarsi, 2¼.

Hab. Bolivia: in the elevated and dense forests at Chimorée, in the country of the Yuracaras Indians. Brought to this country by Mr. Bridges, and now in the collection of the Earl of Derby.

Remark.—Nearly allied to *Ramphastos erythrorhynckus*.

The above is the description of a female.

PTEROGLOSSUS CUCULLATUS. *Pter. vertice et occipite aterrimis; latâ maculâ semilunari ad nucham griseo-cæruleâ; dorso, humeris, apicibusque tectricum alarum majorum aureo-oleagineis, uropygio autem et tectricibus caudæ superioribus virido-flavis infectis; tectricibus alarum superioribus, pogoniis externis primariarum, et secondariis saturatè viridibus; pogoniis internis nigris; genis guláque ferrugineis, harum colore cum inferioris corporis cæruleo-griseo gradatim confuso; tectricibus caudæ inferioribus nitidè coccineis; rostro flavo-viridi obnubilato, nisi tertiâ parte apicali, et maculâ oblongâ utrinque ad basin inferioris mandibulæ, nigris.*

Crown of the head and occiput deep shining black; at the back of the neck a broad crescentic mark of blue-grey; back, shoulder, and tips of the greater wing-coverts golden olive, passing into greenish yellow on the rump and upper tail-coverts; greater wing-coverts, outer webs of the primaries and the secondaries dark green; inner webs black; sides of the face and throat sooty black, gradually blending with the dark bluish grey of the under surface; under tail-coverts shining crimson; thighs light chestnut; bill yellow, clouded with green for two-thirds of its length from the base, and black for the remainder of its length; the under mandible with an oblong irregularly-shaped patch of black on each side near the base; feet greenish lead-colour.

Total length, 18 inches; bill, 4; wing, 7; tail, 7½; tarsi, 2.

Hab. The forests of Cocapata, department of Cochabamba, Bolivia.

Remark.—Three specimens of this highly interesting new species were brought home by Mr. Bridges; two of them are now in the possession of the Earl of Derby, and the third in the collection at the British Museum. The sexes are precisely similar in colour and markings, but the female may be readily distinguished by her somewhat smaller size and by the much smaller size of the bill.

The whole of the plumage is very dense or thick.

ODONTOPHORUS BALLIVIANI. *Odont. capite cristâque ferrugineo-rufis; infra et pone oculum latâ aterrimâ maculâ, supra et subter*

lineâ rubro-cervinâ marginatâ; corpore inferiore castaneo-fusco, nigro minutissimè maculato; plumis singulis maculâ albâ ornatis.

Head and crest rich rusty red; beneath and behind the eye a broad patch of deep black, bounded above and below by a stripe of reddish buff; upper surface olive, minutely freckled with black; the feathers of the centre of the back and scapularies with a fine line of buffy white down the apical half of the stem, and with a small double spot of black on their inner, and a large patch of black on their outer webs, bounded above and below with rusty red; primaries and secondaries brown, crossed with irregular bands of rusty red, freckled with black; under surface dark chestnut-brown or coffee-colour, minutely freckled with black, each feather with an irregularly-shaped patch of white, bordered with black near the centre, giving the whole of the under surface a singularly rich and sparkling appearance; bill black; feet lead-colour.

Total length, 12 inches; bill, 1; wing, $6\frac{1}{4}$; tail, $2\frac{3}{4}$; tarsi, 2; middle toe and nail, $2\frac{1}{4}$.

Hab. The forests of Cocapata, department of Cochabamba, Bolivia.

Remark.—I have named this new bird *Balliviani*, in honour of General Ballivian, President of the Republic of Bolivia. It is one of the finest species of that section of the group to which the term *Odontophorus* is now restricted, is nearly allied to the bird I have named *Odontophorus guttatus*, and may be readily recognised by its larger size and by the still more conspicuous marking of the under surface.

We are indebted to the researches of Mr. Bridges for our knowledge of this beautiful bird.

CALLIPEPLA VENUSTA. *Call. fronte mento guldque holoserico-nigris, fasciâ albâ ab oculi posteriore angulo latâ circumdatâ; nigrâ cristâ rectâ et erectâ; occipite ferrugineo-rufo; pectore cæruleo-griseo; abdomine superiore cervino, medio nigro, inferiore tectricibusque caudæ inferioribus arenaceis; plumis ad latera castaneis, mediis sed pogoniis stramineo-albis.*

Forehead, chin and throat deep velvety black, encircled from the posterior angle of the eye with a broad line of white; across the head and passing down behind the eye another line of white, bounded posteriorly with black; crest straight, erect, and of a deep black; occiput rusty red; feathers of the sides and back of the neck lanceolate in form and of a blue-grey, encircled all round with brown; back, wings, rump and upper tail-coverts olive-grey; tertiaries edged with buff narrowly on their outer webs and broadly on their inner ones; tail grey; chest blue-grey; upper part of the abdomen buff; centre of the abdomen black; flank-feathers rich chestnut, with a line of buffy white down the centre; lower part of the abdomen and under tail-coverts sandy buff, with a broad stripe of greyish brown down the centre of each of the latter; bill black; feet brown.

Total length, $8\frac{3}{4}$ inches; bill, $\frac{11}{16}$; wing, $4\frac{1}{2}$; tail, 4; tarsi, $1\frac{3}{8}$; middle toe and nail, $1\frac{3}{8}$.

Hab. Supposed to be California.

Remark.—I am indebted to the kindness of M. Louis Coulon, Director of the Museum at Neufchâtel, for the loan of this species, for the purpose of figuring in my monograph: it is the only specimen I have seen, and in all probability is the only one that has been sent to Europe; it is a bird whose rarity is only equalled by its beauty: it is very nearly allied to *Callipepla Californica*, but is distinguished from that bird by the straight form of the crest, the rich colouring of the flank-feathers, by the absence of the scale-like markings of the abdomen, and the greater length of the tail.

August 25, 1846.

R. C. Griffith, Esq., in the Chair.

The following communication was read:—"On the Relation of the *Edentata* to the Reptiles, especially of the Armadillos to the Tortoises." By Edward Fry.

The dissections of two specimens of Tortoise, of which I have been unable to recognise the species with certainty, induced me to believe that those animals are allied to the Armadillos. Continuing this investigation, and extending it to the Edentata in general, I arrived at the conclusion that they are allied to the Reptiles. As some points of affinity have occurred to me which I have not seen noticed as such, I believe that a short sketch of the subject may not be devoid of interest; and as Professor Owen has intimated his belief that the Edentata are allied to Birds rather than to any other class, I shall conclude my paper with a consideration of the arguments adduced by him hereon.

Such subjects as the one I shall attempt to investigate are of so high an interest to the zoologist, that any one contributing in the least degree to elucidate them may hope for indulgence.

I regret not being able to ascertain the names of the species of Tortoise which came under my notice, but trust that this omission will not materially deduct from the interest of the subject.

Sect. I. *Of the Relation of the Genera* Dasypus *and* Testudo.

1. In the Tortoise the œsophagus is large and muscular, admitting bodies of great size in proportion to the mouth. From the structure of the mouth it is incapable of masticating the food, whence arises the necessity of a large and muscular œsophagus. Professor Owen has remarked a similar structure, and adduced the same final cause in the Armadillo, *Dasypus peba*. In his paper in the Proceedings of the Zoological Society, i. 144, he says: "The muscular parietes of the pharynx and œsophagus are very thick, for from the nature of the teeth, small, conical and wide apart, the food can undergo but little comminution in the mouth, and hence the necessity of additional power for propelling imperfectly divided substances into the stomach."

2. In concordance with the structure of the mouth, the stomach of the Tortoise is strong and muscular: in the larger of the two individuals I dissected so remarkably so, as would forcibly have reminded a casual observer of the gizzard of birds. The stomach of the Armadillos, though of a globular form, is similar in structure; so much so, that Prof. Owen speaks of it as "a structure analogous

to the gizzard of birds," *Ibid.* As in the *Dasypodæ* (Zool. Proc. i. 142 & 154), so in the larger specimen of the Tortoise, the coats of the stomach, generally thick, are especially so at the pylorus.

3. In the smaller species of Tortoise I observed that the colon is prolonged beyond the insertion of the ileum, so as to form a short cæcum, as described by Martin in his account of the *Testudo græca* (Zool. Proc. i. 63 & 74). In my larger species there was no cæcum; such is also the case with the *Testudo indica* (Zool. Proc. i. 47). In the *Testudo tabulata* "there is no trace of appendix cæci" (Holberton in Zool. Journal, iv. 325). On the other hand, Prof. Owen has ascertained the presence of a cæcum in another species of Tortoise, *Emys concentrica*, Leconte (Zool. Proc. i. 74). From these accumulated observations, it becomes evident that the presence of a cæcum is a varying character in the Tortoises. A similar variableness in this structure has been remarked by Prof. Owen in the genus *Dasypus* (Zool. Proc. i. 156).

4. A great tendency to anchylose parts usually distinct, and to ossify others generally cartilaginous, is observable in the Tortoise in the ribs, in the dorsal vertebræ, in the scapulæ and clavicles, in the component parts of the pelvis, in the sternal cartilages, and in the parts forming the plastron. In the Armadillos it may be remarked in the cervical vertebræ, in the sternal portions of the ribs, and in the manubrium and clavicular processes (Owen in Zool. Proc. ii. 134). In the Sloths also it is especially evident in the anchylosis of the bones of the hand.

5. Hence results a similarity of locomotion in the Tortoises and Armadillos; so that the following extract from Prof. Owen, referring to the motion of the latter animals, will apply almost equally well to that of the former: "Every one who has seen the living Armadillo running about the open plot of ground in the Society's Gardens must have been struck with the machine-like manner in which the body is carried along. The short legs are almost concealed, and their motions are not accompanied by any corresponding inflections of the spine, the two extremities of the trunk not being alternately raised and depressed as in the quadrupeds which move by bounds" (Zool. Proc. ii. 135).

6. The anterior articular processes of the vertebræ of the Armadillo, especially of the hinder dorsal and the lumbar regions, assist as "strutts or braces" in the support of its heavy shell; whilst in the Tortoise a similar object is effected by the small osseous supports which proceed from its anchylosed spine.

7. Both in the Armadillo and Tortoise the ossa ilia appear to serve as additional supports to the shell.

Sect. II. *Of the Relation of the* Edentatous Mammalia *to the* Reptiles.

1. In the Two-toed Anteater the ribs are so broad as to overlap each other like tiles (Cuvier, Lectures on Comparative Anatomy, translated by Ross, 1802, vol. i. p. 209). This is, I believe, the nearest resemblance amongst other Vertebrata to the bony case of the Tor-

toises. In the Armadillo the first pair of ribs are broader than they are long (Owen, Zool. Proc. ii. p. 135).

2. In the large number of the ribs of the Unau, we have what Prof. Owen has termed a lacertine character (on Mylodon, p. 166).

3. Like the Tortoises, &c. amongst Reptiles, the Anteaters and Pangolins are deprived of teeth; whilst those Edentata which are furnished with them approximate to the dentition of some of the Reptilia in the uniform character of the series; and in the subgenus *Priodontes* of Fred. Cuvier in the extremely large number, namely eighty-eight or ninety-six in all.

4. The Edentata, like the Reptiles, are remarkable for the propensity to develope coats of mail of various kinds; sometimes continuous; in other instances, of detached and separate scales; sometimes, to continue the simile, like plate-armour; sometimes like scale-armour. The Armadillos, the Chlamyphorus, the Pangolins, and some of the extinct Megatheroids, exhibit this amongst the Edentates; whilst almost all the Reptiles partake in measure of this character.

5. The Anteater and Manis are destitute of the power of emitting sounds (Blumenbach's Anatomy, translation by Lawrence, 1807, p. 278). This incapacity approximates them to the Reptiles, and particularly distinguishes them from Birds and most of the Mammalia. In this character however most of the Marsupiata partake.

6. Waterton, in his 'Wanderings,' furnishes us with a highly graphic description of the habits of the *Myrmecophaga jubata*. From the extracts I shall make, the similarity of this animal to the Reptiles will be manifest in three important points, viz. the slowness of its movements, the tenacity with which it retains any object which it has seized, the length of time which it can pass uninjured without food; and probably a fourth—the tenacity of life and muscular power. The Tortoises exhibit these phænomena of muscular irritability perhaps as well as any genus amongst the Reptiles.

"He (*Myrmecophaga jubata*) cannot travel fast, for man is superior to him in speed. . . . .Whenever he seizes an animal with these formidable weapons (his claws), he hugs it close to his body and keeps it there till it dies through pressure or through want of food. Nor does the Antbear in the meantime suffer much from want of aliment, for it is a well-known fact that he can go longer without food than any other animal, excepting perhaps the Land Tortoise. . . . . .The Indians have a great dread of coming in contact with this animal, and after disabling him in the chase, never think of approaching him till he is quite dead." (Waterton's Wanderings in South America, 171.)

That muscular irritability exists to a similar extent in the Sloths will be proved by the following extract:—

"Cor motum suum valdissime retinebat postquam exemptum erat a corpore, per semihorium; exempto corde, ceterisque visceribus, multo post se movebat et pedes lente contrahebat sicut dormituriens solet." (Pison. Hist. Bras. p. 322, quoted by Buffon; translation by Smellie, 1791, vol. vii. p. 161.)

7. In the Sloths and Weasel-headed Armadillo the absence of the os tincæ, and the consequent formation of a single tube by the uterus and vagina, approximate these organs very nearly to the oviduct of the Reptilia (see Owen, Zool. Proc. ii. 131, and on the Generation of Marsupial Animals in Phil. Trans. 1834, p. 365).

In the genera *Bradypus*, *Dasypus*, *Manis* and *Myrmecophaga*, "the utero-sexual canal," to use the words of the last-quoted memoir, "is formed, as in the Tortoises, by a continuation of the urethra or urinary bladder, into which the genital tube opens by a small orifice."

8. There is yet another highly important character, one indeed which has probably a relation to the preceding, which displays the intimate relationship of the Edentata and Reptiles, namely the extreme simplicity of the brain. In the Armadillos, Manises and Ant-eaters, the cerebral hemispheres are devoid of convolutions, whilst in the Sloth they present a few anfractuosities (Owen, Phil. Trans. 1834, p. 361).

9. Professor Owen says, in his elaborate memoir on the *Mylodon robustus*, that the presence of a persistent formative organ of the teeth of the Megatheroids indicates a property in which they resembled the Reptiles, viz. longevity (p. 166). And again, the intimate structure of the soft dentine of the teeth of the Iguanodon resembles that of the extinct Megatherium and of the recent Sloths (Owen's Odontography, p. 251). Is it not an idea which forcibly impresses on us the unity of the great plan of nature, that had a comparative anatomist existed in the days of the Megatherium and Iguanodon, he might have discovered from an examination of their teeth two common characters, and might thence perhaps have inferred those very relations which in the present paper I have been seeking to enforce with regard to their congeners of another age—almost another world?

10. It is well known that the blood-corpuscles of the Reptiles are remarkably large; the Sloths are the largest yet known amongst the Mammalia, with the single exception of the Elephant. Perhaps however this may be a character of little importance in elucidating the natural affinities of groups, as we find the corpuscles of the Armadillo rather smaller than Man's, and those of the Monotremata of about the same size as the human (Gulliver on Blood-corpuscles, Zool. Soc., October 14, 1845).

Sect. III. *Of the Arguments adduced by Professor Owen for believing the* Edentata *to be allied to* Birds.

I propose first to enumerate these arguments, and then to consider them more particularly. They are to be found in Professor Owen's interesting papers on the anatomy of the Six-banded and Weasel-headed Armadillos in the Proceedings of the Zoological Society of London, so often referred to and quoted in this paper, and are as follows:—1. The presence of two cæca in the *Dasypus 6-cinctus* and *Myrmecophaga didactyla*. 2. "The gizzard-like structure exhibited in the tendinous external appearance and thickened muscular coat of

the stomach of the *Dasypodæ*," and a still nearer approach in the stomach of the Manis. 3. The presence of a similar structure in the Myrmecophagæ, accompanied by the habit of swallowing small pebbles for the purpose of destroying the vitality of the insects which form their food. 4. The similarity of the mucous glands about the os hyoides of the Anteaters to those follicles in the Woodpeckers, which represent amongst Birds the conglomerate salivary glands of the Mammalians; and the lubrication of the extensile tongue. 5. The abnormal number of cervical vertebræ in the Three-toed Sloth. 6. Prof. Owen concludes this line of argument in the following words: "The transition is indeed nearly completed by the Monotremata, for of the two genera contained in this order, Echidna presents us with the quills, and Ornithorhynchus with the beak of a bird; and it is far from being proved that the mode of generation is not the same." 7. The form of the pubis of the Armadillo indicates "that only a small portion of what usually constitutes the symphysis is here joined to its fellow, viz. the anterior angle;" and in Chlamyphorus and *Myrmecophaga didactyla* the ossa pubis remain entirely separate, as is the case in Birds. The pelvis likewise resembles theirs "in the great breadth of the posterior part of the sacrum, the angles of which are anchylosed to the spines of the ischia, and convert the great ischiatic notches into complete foramina."

1. The occurrence of double cæca is a remarkable point of affinity to Birds; but we have previously shown that the presence of cæca is a variable character in the Tortoises, as in both Dasypus and Myrmecophaga, so that the characters furnished us by this organ seem to approximate them equally to Birds and Reptiles.

2. We have shown the structure of the stomach in the Tortoises to be gizzard-like. This is also the case in *Crocodilus acutus* (Owen in Zool. Proc. 1830, p. 139). Hence the stomach of the Edentata presents us with an equal analogy to Reptiles and Birds.

3. The habit of the Myrmecophaga of swallowing small pebbles to increase the trituration of the gizzard is certainly analogous to that of the Gallinaceous Birds. But the same has been remarked in the Egyptian Crocodile by Professor Geoffroy St. Hilaire, and in the sharp-nosed species by Prof. Owen (*ubi supra*). As the gizzard-like structure and pebbles of the Myrmecophaga are adapted to the digestion of animal food, as in the Reptilia, and not of vegetable, as in the Gallinaceous Birds, I consider the resemblance of the Edentata in these respects to be greater to the former than the latter animals.

4. The salivary glands of the Chameleon, if not formed on exactly the same type as those of the Anteaters, are at least similar in the office they perform.

5. The abnormal number of cervical vertebræ in the Ai approximates the Edentata equally to Reptiles and Birds.

6. The Monotremata, which Professor Owen in the passage I have quoted seems to look upon as the terminal link between the Edentata and Birds, are certainly more nearly allied to Reptiles than to Birds, and have indeed been considered so by himself, as will be manifest

from the following extract from a letter of that gentleman quoted in Kirby's Bridgewater Treatise, vol. ii. p. 432:—"Dissections of most of the genera of Marsupians have tended to confirm in my mind the propriety of establishing them as a distinct and parallel group, beginning with the Monotremes, which I believe to lead from Reptiles, not Birds." Again, in his paper 'On the Young of the *Ornithorhynchus paradoxus*,' Zool. Trans. vol. i. p. 221, he very distinctly states the weight of evidence to be in favour of the relation of the Monotremates to the Reptiles rather than Birds; so that in all probability he has altered his views on this subject since 1830.

The evidence produced above is conclusive for my purpose, and precludes the necessity of discussing the analogies of the Monotremata. But as Prof. Owen has alluded to the beak of the Ornithorhynchus as that "of a bird," it may not be irrelevant to show in how many important particulars the two structures differ. "This structure," says Sir Everard Home, speaking of the organ in question, "differs materially from the bill of a Duck, and indeed from the bill of all birds, since in them the cavities of the nostrils do not extend beyond the root of the bill; and in their lower portions, which correspond to the under jaw of quadrupeds, the edges are hard, to answer the purpose of teeth, and the middle space is hollow, to receive the tongue" (Home on Head of Ornithorhynchus, Phil. Trans. 1800). When to this diversity of structure we add the difference of use, we shall see that however strong may be the resemblance at first sight, it is perhaps more imaginary than real. From the description above-quoted, we learn that the beak of the Ornithorhynchus is incapable, from the general flexibility of its structure, of taking firm hold of any object; but that the marginal lips being brought together, the prey is sucked into the mouth.

Perhaps too the similarity of the spines of the Echidna to the quills of a bird is not very close.

7. The pelvis of some Edentata certainly resembles that of Birds in a remarkable degree.

I have thus endeavoured to show that many of the structures in the Edentata, adduced by Prof. Owen as offering relations to Birds, are equally so to Reptiles; whilst those that lead us to the former class are not of equal number or importance to those that conduct us to the latter.

I am fully aware that the scope and conduct of my investigations have been defective; but so far as they extend they appear to me to prove simply this, viz. that the Edentata are allied to the Reptiles, and that more nearly than to Birds.

It would have been absurd to expect any other result from this investigation than such as the present: a group is never related to one other group only: "The true affinities of organic structures branch out irregularly in all directions."

I cannot conclude without observing, that it is highly remarkable and interesting that affinities should be found to prevail amongst

creatures often remotely situated one from the other in the Animal Kingdom; that these relations often appear subtle and irrespective of functional similarity; and that whilst their final cause will probably ever remain unknown to man, we cannot consider them without deeply appreciating the order, the unity and dependence which prevail throughout all parts of nature. EDW. FRY.

September 22, 1846.

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

John Gould, Esq., laid before the meeting the following letter, detailing the circumstances of the death of Mr. John Gilbert, who formerly had been many years in the employment of the Society. He fell in the service of zoological science during an expedition into the interior of Australia.

"Sydney, May 12, 1846.

"Dear Sir,—As I was one of the party that journeyed from Sydney to Port Essington, and not knowing whether you had been made acquainted with the full particulars of poor Gilbert's death by Dr. Leichhardt, or any other of the party, thinking the details of his melancholy fate would be read with interest, I shall offer no apology for addressing this to you.

"As Mr. Gilbert's log, which has been sent home to you, fully narrates all particulars up to the eventful 28th of June, I shall offer no remarks of my own. At the most northerly point we reached on the east side of the Gulf of Carpentaria, in lat. 15° 57′, and about fifty miles from the coast, we encamped for the night at a small shallow lagoon surrounded by low tea-trees, the country around beautifully open. Having partaken of our usual meal of dried meat about 3 P.M., Gilbert, taking his gun, sallied forth in search of something new—he procured a Climacteris and a Finch, which he skinned before dinner; our scanty meal was soon despatched; poor Gilbert was busily employed plaiting the cabbage-tree, intending to make a new hat, which, alas! he never lived to finish. The shades of evening closed around, and after chatting for a short time we retired to our separate tents—Gilbert and Murphy to theirs, Mr. Calvert and myself to ours, and Phillips to his; the Doctor and our two black fellows slept round the fire, entirely unconscious of the evil designs of the natives; having always found those we had passed so friendly and well-disposed, we felt in as great security as you do in the midst of London, lying on our blankets, conversing on different topics. Not one, I think, could have closed his eyelids, when I was surprised by a noise, as if some persons were throwing sticks at our tent; thinking it must be some trick played on us by our companions, I sat up to look out; another volley of spears was thrown; a terrific yell, that will ring in my ears for ever, was raised, and pierced with spears, which I found it impossible to extricate, I sunk helpless on the ground; the whole body rushed upon us with their waddies, and how it is it that our brains did not bespatter the ground is to me miraculous. These rascals had crept on us under cover of the tea-trees: the tent in which Calvert and I were being first in their road, the whole body attacked us; poor Gilbert, hearing the noise,

was rushing from his tent with his gun, when a spear thrown at him pierced his breast, and, penetrating to his lungs, caused internal hæmorrhage; the only words he spoke were these, 'Charlie, take my gun; they have killed me,' when pulling the spear out with his own hands, he immediately dropped upon the ground lifeless. Little Murphy, who was by his side at the time he was speared, fired at the black fellow who speared him; Brown fired at the mob beating Calvert and myself, and they immediately retreated howling and lamenting. Mr. Calvert was pierced with five spears, myself with six, and our recovery is to be attributed to the abstemious way in which we lived. After having the spears pulled out, you may imagine our feelings when we heard Charlie exclaim, 'Gilbert is dead!'—we could not, would not, believe it. Alas! the morning brought no better tidings—poor Gilbert was consigned to his last and narrow home; the prayers of the church of England were read over him, and a large fire made upon his grave for the purpose of misleading the blacks, who, we thought, would probably return and search the camp on our departure. It is impossible to describe the gloom and sorrow this fatal accident cast upon our party. As a companion, none was more cheerful or more agreeable; as a man, none more indefatigable or more persevering; but it is useless for me to eulogize one so well known to you—one whom you will have cause to regret, and who will ever be remembered by,

"Sir,

"Yours most truly,

"JOHN ROPER."

The skull of a Seal was exhibited to the meeting, presented by the Society's Corresponding Member, Richard Hill, Esq., who refers to it in a letter, dated Spanish Town, Jamaica, July 8, 1846, as "a skull of an undescribed Seal found on the islands and shoals called by the seamen the Pedros, but known as the Vibora Bank on the old Spanish charts, situated about a degree to the south of Jamaica."

Mr. Hill's letter proceeds: "The most detailed account I can give of this Seal, in addition to the facts presented by an inspection of the cranium, which will be found to have much of the contour and character of that of the *Calocephalus* of Frederick Cuvier, will comprise little more than the statement that it has no external auricles: the foramina are so small that all trace of an ear to a casual observer is imperceptible. The colour of the animal is intensely and uniformly black; the hair is stiff and close, and very short; the nails of the hinder claws are rudimentary; the eyes are large, black and full, and the iris crimson.

"The measurements of the specimen from which the cranium sent was obtained, are the following:—

	ft.	in.
Total length along the back from the snout to the tip of the tail	4	2
Length of the tail	0	3
From the snout to the insertion of the fore-paw	1	6
From the insertion of the fore-paw to that of the hind-paw	2	10

	ft.	in.
Circumference of the body near the fore-paws	3	2
Breadth of the back at the fore-paws	1	0
From one fore-paw to the other, extended out	2	6
Length of the fore-paw	0	10
Length of the hind-paw	0	11
Circumference at the hind-paws	1	6
Breadth of the head across the ears, horizontally measured	0	7
Length of the head	0	9
Breadth of the nose	0	4½

"Other seals have been taken nearly, if not quite, double this size."

A paper was then read, "On a new Genus of the Family *Lophidæ* (les Pectorales Pediculées, Cuv.) discovered in Madeira." By the Rev. R. T. Lowe, M.A., Corr. Memb.

The addition, Mr. Lowe observes, of an unequivocal new genus to a family so circumscribed and so singular as *Lophidæ* is well-worthy of remark. The present genus has, besides, further claims on the attention of the ichthyologist in the peculiar combination of distinctive features of its own with characters exhibited by other groups in the same family; and this independent of the interest attaching to the fish in which they are exemplified, from singularity of form and aspect, brilliancy of colouring, locality, and extreme rarity, no other instance of its capture at Madeira having occurred during the last twenty years.

It is nearest allied amongst the groups of *Lophidæ*, in general habit and aspect, with *Cheironectes*, Cuv., although in technical characters it may seem to approach even nearer to *Halieutæa*, Val.

The individual described was taken with an ordinary bait and line at the Picos, a rocky shoal about a league from shore off Camera de Lobos, a village five or six miles westward of Funchal.

Chaunax, nov. gen.

Char. Gen. Corpus subcubico-oblongum, sufflatabile, nudum, cute præsertim ad ilia ventremque flaccidissimâ laxâ; anticè obesum, posticè abruptè attenuatum subcompressum. Caput osseum magnum subtetrahedrum, supernè nuchâque latum planatum, utrinque S. ad genas declive; oculis lateralibus spatio interoculari convexo; ore rictuque amplissimis transversis plagio-plateis S. depressis. Dentes intermaxillares vomerinique palatinique parvi scobinati. Nares simplices (nec pedicellatæ nec tubulosæ). Spiracula (foramina branchialia) postica S. ad ilia pone pinnarum pectoralium axillas.

Pinna dorsalis unica; pectoralibus (pedicellatis) carnosis ventralibus jugularibus spathulatis carnosis; analis postica; caudalis simplex truncata.

Cirri, præter unicum in fossulâ internasali, nulli.

Chaunax pictus, Lowe.

D. 11; A. 5; P. 11; V. 4; C. $\frac{1+\text{IV.}}{2+\text{II.}}$

Species adhuc unica.

Hab. In mari Maderensi.

Shape thick and deep, subcubic, about half as deep as broad, with a puffy flaccid appearance, and evidently capable of vast inflation; bulky forwards, with the head, nape and body of equal depth and thickness, contracting suddenly on the flanks or behind the pectoral fins into a short thickish tail. Back of head and nape as far as the dorsal fin broad and thick, flattened and uneven or irregularly protuberant; thence to the end of the dorsal fin the body is nearly cylindric, becoming compressed towards the root of the caudal fin.

Head broad and deep; eyes lateral; sides of the head steep, but not flat; mouth very large and wide, but not so wide as the head, horseshoe or crescent-shaped. Teeth in a distinct brush-like band on the edges of both jaws. Tongue very large, thick, hard and smooth. The nostrils are two inconspicuous, minute, round, simple pores on each side, one a little before the other near the edge of the muzzle. Eyes of moderate side, roundish oval, rather prominent, but not pedicelled.

In the middle of the front of the muzzle is a short, pedicelled, soft, flaccid tentacle or caruncle scarcely more than a semidiameter of the eye in height or length; the whole body destitute of any other tentacle, ray, filament or spine whatever; the top of the head is however irregularly knobbed, or uneven, with bony prominences and depressions.

The breathing-holes or branchial orifices are placed far backwards, considerably behind the hinder axils of the pectoral fins, in the middle of the flanks, which are peculiarly flaccid and flabby. They are oval ear-shaped, and about the size or diameter of the eyes.

The dorsal fin is single, placed nearly in the middle of the whole length, its height one-fourth of the length of its base.

The anal fin is placed far behind, opposite the end of the dorsal.

The pectoral fins are placed low down about the middle of the length of the body, beneath the origin of the dorsal fin.

The ventral fins are close together, very forward, quite under the throat.

Caudal fin simple, truncate, with a straight edge.

All the fins, except the dorsal and caudal, are thick and fleshy, with the rays strong but indiscernible to the eye, except towards the outer edges of the pectoral fins.

The whole head and body, with the maxillaries and the rays of the dorsal and caudal fins, are finely hispid or shagreened, and rough and scabrous to the touch, the under surface more finely shagreened than the upper.

The whole skin is singularly loose and flaccid. The head and body are, as it were, mapped out into compartments by remarkable chain-like rows of pits or oblong, shining, smooth depressions in the skin. One set or row of these begins upon the muzzle, and passing above each eye, turns downwards behind it and runs on a level with its lower edge straight along the sides as far as the breathing-holes, thence downwards along the tail to the caudal fin.

Under the lower jaw is a horse-shoe-shaped space enclosed by similar smooth pits, the two ends of which, connected by a transverse chain of pits, turn off backwards towards the corners of the mouth, and continuing low down on the sides of the belly, end underneath the axil of the pectoral fins.

A third wavy line runs along the inner or hinder edges of the maxillaries, and turning obliquely backwards some distance underneath the eye, descends till it meets and is terminated by a fourth obliquely vertical row which crosses the nape like a head-stall, and is terminated low down on the sides of the throat by the second longitudinal line. On the nape the edges of these pits are raised or echinulate, and more disconnected than elsewhere.

Colour of the whole fish above bright orange, beautifully rosy at the flanks and sides, and with the fins and lips vermilion; on the belly it is nearly white or pale, suffused with flesh-colour or rosy, and with the ventral or anal fins deeper vermilion.

The tentacle dull, its stalk orange.

MEASUREMENTS.	inches.
Whole length	16
From tip of upper jaw to origin of dorsal fin	6
Length of base of dorsal fin	4
Length from end of base of ditto to root of caudal fin	2
Length of caudal fin	3¼
Length of head	5
Breadth, greatest at fore axil of pectoral fins, from	8 to 10
Depth, greatest half-way, the tip of upper jaw and origin of dorsal fin	4
Depth at root of caudal fin	1
Length from tip of lower jaw to root of ventral fins	4
Length of ventral fins	2¼
Length from each breathing-hole to root of caudal fin	5
Diameter of eyes	0¾

Mr. Gould then exhibited to the meeting two new Australian birds, which he characterized as follows:—

MELIPHAGA LONGIROSTRIS. *Vertice et genis nigris; plumis minutis ad basin mandibulæ superioris, mystacibus ad basin inferioris mandibulæ, strigâ superciliari, plumarum cristulâ post aures, plumisque in jugulo setosis, albis.*

Top of the head and cheeks black, with minute white feathers on the forehead round the base of the upper mandible; a superciliary stripe, a moustache at the base of the lower mandible, and a small tuft of feathers immediately behind the ear-coverts white; feathers on the throat white and bristle-like; upper surface brownish black, becoming browner on the rump; wings brownish black, the outer edges of the quills margined at the base with beautiful wax-yellow, and faintly margined with white towards the extremities; tail brownish black, margined externally at the base with wax-yel-

low, and with a large oval spot of white on the inner web, at the tip of all but the two centre feathers; surface white broadly striped with black, the black predominating on the breast and the white on the abdomen; irides white; bill and feet black.

Hab. Western Australia.

Total length, 7 inches; bill, 1; wing, $3\frac{1}{4}$; tail, $3\frac{1}{2}$; tarsi, $\frac{3}{4}$.

Remark.—Nearly allied to the *M. Novæ-Hollandiæ*, but differing from that species in the stouter and more lengthened form of the bill, and in having the white patch on the face much less defined.

LIMOSA MELANUROIDES. *Capite, et corpore superiore griseo-fuscis; primariis secondariisque ad basin et tectricibus alæ majoribus ad apicem albis, colore, expansâ pennâ, tanquam fasciâ apparente; tectricibus caudæ superioribus albis; caudâ atrâ, nisi rectricibus lateralibus duabus ad basin albis.*

Head and all the upper surface greyish brown, with a small streak of black down the centre of the feathers; wings dark brown; shafts white; base of the primaries and secondaries and tips of the greater coverts white, forming a band when the wing is expanded; upper tail-coverts white, forming a conspicuous mark; tail black, with the exception of the two lateral feathers on each side, which are white at the base and black at the tip; neck, breast and flanks greyish brown; abdomen and under tail-coverts white; irides brown; bill greenish grey, becoming paler on the sides of the upper mandible; legs and feet greenish grey.

Total length, 13 inches; bill, $3\frac{3}{8}$; wing, $7\frac{5}{8}$; tail, $3\frac{1}{4}$; tarsi, $2\frac{5}{8}$.

Hab. Port Essington.

Remark.—Nearly allied to, but differing from, the *Limosa melanura* of Europe in its much smaller size.

October 13, 1846.

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

The following papers were read to the Society:—

"On twenty new species of TROCHILIDÆ or Humming Birds." By J. Gould, F.R.S.

Having lately turned my attention to the *Trochilidæ*, I find that, much as this beautiful group has attracted the notice of previous writers, several species remain undescribed.

At a former meeting of the Society I characterized three, and on the present occasion I propose to describe seventeen others, making twenty in all. The species described are contained in my own collection.

1. TROCHILUS (TOPAZA) PYRA. *Troch. abdomine, lateribus, dorso, humerisque, igneis rubro-fulgentibus; capite, auribus, nuchâ, et fasciâ inferiorem collum ornante, intensè atris; gulâ luminosè viridi, mediâ aurantiacâ; rectricibus intermediis duabus viridibus, purpurascentibus, reliquis autem intensè purpureis; rectricibus duabus intermediis proximis valdè elongatis et ad bases decussatis.*

Abdomen, sides, back, and shoulders, luminous fiery-red; head, ear-coverts, back of the neck, and a band crossing the lower part of the neck, deep velvety black; throat luminous pale green, passing into rich orange in the centre; two centre tail-feathers purplish green, the remainder deep purple, the feather on each side the centre ones much-elongated and crossing each other near the base; upper tail-coverts luminous light green with red reflexions; under tail-coverts luminous green; primaries purplish brown; bill black; feet blackish brown.

Total length from the tip of the bill to the end of the centre tail-feather, 6 inches; to the end of the elongated feathers, $8\frac{3}{4}$; bill, $1\frac{1}{8}$; wing, $3\frac{1}{2}$; tail, $2\frac{3}{8}$, of the elongated feathers, $4\frac{5}{8}$.

Hab. Rio Negro, Brazil.

Remark.—I consider this to be without exception the most gorgeous species of the Trochilidæ yet discovered. It is somewhat larger than, but of precisely the same form as, *T. pella*, which fine species it far exceeds in the brilliancy of its colouring, and from which it is at once distinguished by the fiery lustre of its body and the purplish colouring of its tail-feathers.

2. TROCHILUS (LESBIA) SMARAGDINUS. *Troch. vertice fulgente viridi; gulâ nitente cæruleâ; caudâ perlongâ, furcatâ, fulgentissimâ metallicè viridi; pogoniis rectricum externarum utrisque ad basin et internis reliquarum pogoniis nigris.*

Crown of the head luminous green; throat shining steel-blue; body green, the under surface with a golden tinge; tail very long and forked, metallic green and very luminous; basal portion of both webs of the outer feathers and the inner webs of the remainder black; wings brown; bill black.

Total length, 7½ inches; bill, ¾; wing, 2¾; tail, 5.

Hab. Bolivia.

Remark.—This beautiful species is nearly allied to the *Ornismya Kingii*, Less.

3. Trochilus (lesbia) gracilis. *Troch. guld nitente metallicè viridi; caudâ perlongâ valdè furcatâ; rectricibus externis æneo-fuscis, æneo colore ad splendentem maculam cujusque in apice plumæ fulgentiore, pogoniorum externorum dimidio basali cervino; reliquis rectricibus aureo-viridibus ad basin fuscis.*

Throat beautiful shining metallic green; the remainder of the body golden-green; wings brown; tail very long, much-forked; the outer feathers bronzy brown, the bronze gradually increasing in intensity and becoming a brilliant spot at the tip; basal half of the outer webs buffy white; remaining feathers brown at the base and shining golden green for the remainder of their length; bill black.

Total length, 6½ inches; bill, ½; wing, 2⅛; tail, 4½.

Hab. Peru.

Remark.—This species is very closely allied to the *Trochilus Gouldii*, Lodd., *vide* Proc. of Comm. of Sci. and Corr. of Zool. Soc., part 2, p. 7, which is synonymous with the *Ornismya Sylphiæ*, Less., but from which it differs in several characters, which upon an examination of many specimens, are found to be constant; the bill is shorter, the green of the body ochreous, and the lower part of the abdomen more buffy, or not so green as in the *Gouldii*: the most remarkable difference, however, is in the outer tail-feathers, which are much narrower and not so green. By some ornithologists this might be considered as a mere local variation; but as I have seen many of each kind, and find that the differences are constant, I feel assured that the two birds are specifically distinct.

4. Trochilus (ocreatus) rufocaligatus. *Troch. guld et collo superiore fulgentibus metallicè viridibus; tarsis densis plumis ferrugineis ocreatis; caudâ fuscâ, rectricibus externis prolongatis angustis latæ tamen spathulæ formâ terminatis.*

Throat and fore-part of the neck luminous metallic green; plumage of the body bronzy green; wings brown; tarsi clothed with a thick ruff of rusty-red feathers; tail brown, the outer feathers prolonged and narrow, and ending in a broad spatulate tip; bill black.

Total length, 4½ inches; bill, ¾; wing, 1¾; tail, 2½.

Hab. Bolivia.

Remark.—Nearly allied to the *Ornismya Underwoodii*, Less.

5. Trochilus (ocreatus) ligonicaudus. *Troch. facie, collo superiore et pectore viridibus, plumis pectoris majoribus, fulgentiori-*

bus, griseo nonnunquam fimbriatis; medio abdomine aureo-fusco; uropygio fasciâ albo-cervinâ transversim ornato; caudâ purpurascente fuscâ, fasciâ latâ per mediam stramineâ; rectricibus lateralibus primo diminuentibus, latis autem tanquam spathulis terminantibus.

Face and forepart of the neck green, which colour is continued on the chest, where the feathers become larger, longer, more luminous, and some of them edged with grey; centre of the abdomen golden brown; lower part of the abdomen and under tail-coverts buffy brown; wings purplish black; back and upper tail-coverts green, the rump crossed by a band of buffy white; tail purplish brown, with a broad stripe of buff down the centre; the lateral feathers tapering and terminating in a large spatulate tip; bill black.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $1\frac{7}{8}$; tail, $2\frac{1}{4}$.

Hab. Brazil.

Remark.—Nearly allied to *Trochilus platurus.*

6. Trochilus (——?) cupricauda. *Troch. gulâ luminosè cæruleo-viridi; vertice, collo, dorso, omnique corpore superiore fulgentibus saturatè purpureo-fuscis; caudâ infrà fulgentissimâ æneâ, suprà, æneâ vario lumine nunc viridi, nunc purpureâ, splendente.*

Throat lustrous blueish green; crown of the head, neck, back and all the upper surface dark lustrous purplish brown; wings the same, but lighter; under surface of the tail rich fiery copper colour and very luminous; upper surface in one light rich purplish copper colour, and in another greenish; bill black.

Total length, 5 inches; bill, 1; wing, 3; tail, $2\frac{1}{4}$.

Hab. Bolivia.

Remark.—This species is much larger, but belongs to the same section as the *Trochilus smaragdinicollis* of D'Orbigny and the *T. Allardi* of Bourcier.

7. Trochilus (——?) æneocauda. *Troch. gulâ viridi metallicè fulgente; corpore viridi fusco suprà commixto; alis fuscis purpurascentibus; caudâ infrà fulgente æneo-viridi, suprà metallicè fuscâ, nonnunquam intensè cyaneâ resplendente.*

Throat luminous metallic green, under surface mingled green and brown; upper surface green, wings purplish brown; under surface of the tail luminous brassy green; upper surface of the tail metallic brown, changing in some lights to deep indigo blue; bill black.

Total length, $4\frac{3}{4}$ inches; bill, 1; wing, $2\frac{1}{2}$; tail, 2.

Hab. Bolivia.

Remark.—Belongs to the same section as the last.

8. Trochilus (——?) violifer. *Troch. vertice, nuchâ, mento, loris, pectoreque viridibus; mediâ gulâ maculâ semilunari luminosè violaceâ notatâ; dorso et uropygio aureo-viridibus abdomine inferiore, tectricibus caudæ superioribus inferioribusque, et caudâ rufis.*

Crown of the head, back of the neck, chin, ear-coverts, and breast green; on the centre of the throat a well-defined lunate mark of

luminous violet; back and rump golden green; lower part of the abdomen, the upper and under tail-coverts light rufous; tail light rufous, the tips of the feathers washed with greenish reflexions; wings purplish brown; the external edge of the first primary rufous; bill black.

Total length, $5\frac{7}{8}$ inches; bill, $1\frac{5}{8}$; wing, 3; tail, $2\frac{1}{4}$.

Hab. Bolivia.

Remark.—This fine species is of the same form as the *Ornismya Bonapartei.*

9. Trochilus (lampornis) cyanopectus. *Troch. guld viridi metallicè resplendente; medio pectore fulgente metallicè cyaneo; capite, dorso, humeris, lateribus, et abdomine inferiore æneo-viridibus; caudâ æneo-fuscâ nonnunquam pogoniis internis albâ maculâ ad apicem ornatis.*

Throat lustrous metallic green; centre of the breast deep lustrous metallic blue; head, back, shoulders, flanks, and lower part of the abdomen bronzy green; wings purplish brown; tail in some specimens entirely bronzy brown, in others bronzy brown with a spot of white on the inner web at the tip; bill black, curved stout and large for the size of the body.

Total length, $4\frac{3}{4}$ inches; bill, $1\frac{3}{8}$; wing, $2\frac{3}{4}$; tail, $1\frac{3}{4}$.

Hab. Venezuela.

Remark.—This bird is about the size of *Trochilus mango*, but is not intimately allied to any known species.

10. Trochilus (lampornis) aurescens. *Troch. guld fulgente aureâ; pectore latâ fasciâ rufâ, fronte vittâ lucidâ cæruleo-viridi cinctâ; omni superiore corpore, rectricibus intermediis duabus, tectricibus alarum superioribus inferioribusque, et abdomine æneo-viridibus; alis fuscis purpurascentibus; rectricibus lateralibus castaneis fuscis, infrà et suprà ad apices æneis; tectricibus caudæ inferioribus saturatè cervinis.*

Throat rich luminous gold colour; across the chest a broad band of deep rufous; on the forehead a narrow stripe of shining blueish green; all the upper surface, two central tail feathers, upper and under wing-coverts, and abdomen bronzy green; wings purplish brown; lateral tail feathers chestnut-brown, tipped both above and beneath with a bronzy lustre; under tail-coverts deep fawn-colour; bill black.

Total length, 4 inches; bill, 1; wing, $2\frac{1}{4}$; tail, $1\frac{1}{2}$.

Hab. Rio Negro, Brazil.

11. Trochilus (lampornis ?) fulviventris. *Troch. capite, omni corpore superiore, caudâque nitente viridibus; rectricibus externis ad apices albis; alis fuscis; guld, pectore et abdomine cervinis; tectricibus caudæ inferioribus albis.*

Head, all the upper surface and tail glossy green; the outer feathers of the latter largely tipped with white; wings brown; throat, breast and abdomen deep buff; under tail-coverts white; upper mandible and point of the lower black; the remainder of the under mandible buff.

Total length, 4 inches; bill, 1; wing, $2\frac{3}{8}$; tail, $1\frac{1}{2}$.
Hab. Venezuela.

12. TROCHILUS (——?) NIGROFASCIATA. *Troch. gulâ resplendente viridi; abdomine humerisque extremis nitidè cæruleis, ab viridi gulâ fasciâ semilunari intensè atrâ divisis; caudâ furcatâ cæruleâ.*

Throat lustrous green; abdomen and edge of shoulders shining-blue, separated from the green of the throat by a lunate band of black; back and wing-coverts brownish green; head and back of the neck bronze; wings brown; tail, which is considerably forked, dull steel-blue; bill black.

Total length, $4\frac{1}{4}$ inches; bill, $\frac{7}{8}$; wing, $2\frac{3}{8}$; tail, $1\frac{7}{8}$.
Hab. Rio Negro, Brazil.
Remark.—Nearly allied to *Trochilus furcatus.*

13. TROCHILUS (——?) RUFICEPS. *Troch. vertice ferrugineo; gulâ fulgente æneo-viridi; corpore viridi, infrà fusco-tincto; caudâ magnâ, furcatâ, æneâ.*

Crown deep rusty red; throat lustrous bronze green; upper surface green; under surface brownish green; tail large and forked, and of a pure bronze; wings purplish brown; bill black.

Total length, $3\frac{3}{4}$ inches; bill, $\frac{3}{4}$; wings, $2\frac{5}{8}$; tail, 2.
Hab. Bolivia.
Remark.—This is much smaller, but nearly allied to *T. heteropogon.*

14. TROCHILUS (——?) INORNATA. *Troch. corpore superiore æneo-viridi, inferiore ad latera brunneo, æneo splendente; gulæ plumis ad apices cæruleis; alis caudâque æneis.*

All the upper surface bronzy-green; under surface brown, with bronzy reflexions on the flanks; feathers of the throat tipped with cærulean blue; wings and tail bronzy, all the latter tipped with buff; bill black.

Total length, $3\frac{5}{8}$ inches; bill, $\frac{5}{8}$; wings, $2\frac{1}{8}$; tail, $1\frac{1}{2}$.
Hab. Bolivia.
Remark.—This species is closely allied to the species called *Le Sabine* by the French, *Trochilus* ——?
Hab. Bolivia.

15. TROCHILUS (LOPHORNIS) REGULUS. *Troch. plumis in vertice castaneo-fuscis valdè elongatis, acuminatis, ad apices viridibus; gulâ pectoreque luminosè viridibus, plumis ad colli latera elongatis, minus autem quam in* Trochilo magnifico; *fasciâ in uropygio albâ; caudâ castaneo-fuscâ, plumis singulis æneo-viridibus fimbriatis.*

Feathers of the crown chestnut-brown, very much lengthened, carried to a point, and tipped with green; throat and breast luminous green; the feathers on the side of the neck elongated, but not to so great an extent as in *Trochilus magnificus*; back and abdomen green, with bronze reflexions; rump crossed by a band of white; tail chestnut-brown, each feather margined externally with bronzy green; wings purplish brown; bill light brown, darker at the tip.

Total length, $3\frac{3}{4}$ inches; bill, $\frac{5}{8}$; wing, $1\frac{3}{4}$; tail, $1\frac{1}{4}$.
Hab. Interior of Brazil.

Remark.—This beautiful species is nearly allied to the *T. ornata* and *T. magnifica*, but differs from them in the lesser development of the feathers of the sides of the neck and in the greater size of the crest, which is more largely developed than in any other species known.

16. TROCHILUS (—— ?) HYPOLEUCUS. *Troch. corpore superiore viridi; guld et corpore inferiore albis; rectricibus intermediis duabus viridibus, reliquis fuscis viridi splendentibus, ad apices albis.*

All the upper surface green; throat and all the under surface white; wings brown; two centre tail-feathers green; the remainder brown, glossed with green and largely tipped with white; bill black; base of the lower mandible paler.

Total length, $3\frac{5}{8}$ inches; bill, $1\frac{1}{8}$; wing, $2\frac{1}{4}$; tail, $1\frac{3}{8}$.

Hab. Bolivia.

Remark.—Nearly allied to *T. leucogaster*, Tschudi, and not far removed from *T. albirostris*, Auct.

17. TROCHILUS (—— ?) HISPIDUS. *Troch. omni corpore superiore æneo-fusco; auribus saturatè fuscis infrà et suprà lineâ cervinâ marginatis; corpore inferiore griseo-fusco; jugulo latis strigis albis plumisque longioribus ornato; caudâ viridi-fuscâ, rectricibus lateralibus vix albo ad apices pictis, centralibus attenuatis, valdè elongatis.*

All the upper surface bronzy brown; ear-coverts dark brown, bordered above and below with a line of buff; under surface brownish grey, with broad stripes of white down the throat, where the feathers are much elongated; tail greenish brown, the lateral feathers slightly tipped with white; the central feathers much elongated and attenuated towards the apex, the attenuated portion white; wings brown; upper tail-coverts very broad, much-prolonged and hair-like; bill black, basal half of the under mandible straw-colour.

Total length, $6\frac{1}{2}$ inches; bill, $1\frac{1}{2}$; wing, $2\frac{3}{8}$; tail, 3.

Hab. Peru?

Remark.—This bird belongs to the same section as the *T. Bourcieri*, *T. Guy*, *T. Eurynome*, &c. of Less., and equals in size the largest of them.

The species described by me at the meeting of June 9, 1846, (*ante*, pp. 44, 45) were

18. TROCHILUS (PETASOPHORA) CORUSCANS, a beautiful species allied to the *Anais*, but whose locality is unknown to me.

19. TROCHILUS (—— ?) FLABELLIFERA, which is nearly allied to, but a much larger species than *T. mellivora*, said to inhabit Mexico; and

20. TROCHILUS (—— ?) STROPHIANUS, a fine new species of the same form as the *Clarisse* and the *Parzudaki*.

"Descriptions of thirteen new species of *Brachiopoda*." By G. B. Sowerby, F.L.S.

TEREBRATULA NIGRICANS. *Ter. testâ anticè rotundatâ, posticè acuminatâ, tenuiusculâ, nigricante; valvis inæqualibus, radiatim costatis, costis rotundatis; lineâ marginali rectiusculâ; valvâ dorsali subtrigonâ, depressiusculâ, rotundatâ, lateribus posticis declivibus; foramine magno, haud integro, quadrato; areâ cardinali magnâ, planiusculâ, lateribus rotundatis; deltidiis angustis ad latera foraminis coalescentibus; valvâ ventrali depressâ, transversim ovatâ; dentibus cardinalibus ut in* T. psittaceâ; *margine valvarum crenulato.*

A single specimen of this very interesting species was found in the collection of the late G. Humphrey, without locality. This and the *T. psittacea* are the only species that are not punctated.

TEREBRATULA JAPONICA. *Ter. testâ oblongâ, anticè rotundatâ, tenui, albicante; valvis subæqualiter convexis, longitudinaliter radiatim striatis, striis numerosis, subirregularibus, subbifurcatis, ad latera prope cardinem confertiusculis; lateribus prope cardinem subplanulatis; lineâ marginali rectiusculâ, ad latera posticè declivi; valvâ dorsali posticè subproductâ, truncatâ; foramine mediocri, haud integro, perobliquo; areâ cardinali inconspicuâ, deltidiis obsoletis; interno parvo, ⅓ longitudinis valvæ, ramulos duos angustos, demum amentum latum flexuosum sistente; marginibus valvarum minutissimè denticulato.*

Shell oblong, rounded in front, thin, whitish; valves nearly equally convex, longitudinally radiately striated, striæ numerous, rather irregularly dichotomous and very close-set on the sides near the hinge; the sides near the hinge rather flattened; marginal line nearly straight, inclining to the sides near the hinge; dorsal valve somewhat produced posteriorly and truncated, with a moderate-sized, very oblique and incomplete perforation; cardinal area indistinct, with obsolete deltidia; internal appendages small, one-third the length of the valve, with two narrow little branches, and then a broad flexuous loop; margin of the valves very minutely denticulated.

In Mr. Cuming's collection, from Japan. Easily distinguished from *T. cancellata* of Koch by its foramen not being entire.

TEREBRATULA CRENULATA. *Ter. testâ suborbiculari, posticè subacuminatâ, subtruncatâ, crassiusculâ, albicante; valvis inæqualibus, radiatim costatis, costis paucis, majusculis, rotundatis; lineâ marginali flexuosâ, anticè subsinuatâ; foramine magno, subintegro; areâ cardinali magnâ, subplanulatâ, margine undulato; deltidiis magnis, discretis; valvæ ventralis margine postico ad utrumque latus declivi; ossiculo interno e spinâ validâ obtusâ anticè porrectâ, ramulis duobus lateralibus retroversis; margine valvarum crenato.*

Shell suborbicular, rather attenuated and subtruncate behind, rather thick and whitish; valves unequal, with few rather large, rounded, radiating ribs; marginal line flexuous, slightly sinuated in

front; perforation large, nearly entire; cardinal area large, flattish, with an undulated margin; deltidia large, separate; posterior margin of the ventral valve inclined on either side; internal appendage consisting of a single strong spine standing forward, and with two lateral reflected branches; margin of the valves crenated.

From Santa Cruz, in Mr. Cuming's collection.

TEREBRATULA ROSEA, Humphrey. *Ter. testâ oblongo-ovali, subdepressâ, anticè subattenuatâ, crassâ, roseâ, albicante radiatim pictâ; valvis subæqualibus, lævibus; lineâ marginali subflexuosâ, anticè reflexâ; valvâ dorsali majori, posticè subproductâ, truncatâ; foramine minimo, integro; areâ cardinali latiusculâ, deltidiis coalescentibus, sulco mediano discretis; valvâ ventrali ovali, anticè paululùm rotundato-attenuatâ; lineâ marginali ex umbone ad utrumque latus declivi; ossiculo costâ elevatâ, porrectâ, simplici constante; margine valvarum integro.*

Shell of an oblong-oval form, rather depressed, slightly attenuated behind, thick, rose-red, painted with paler radiating marks; valves nearly equal, smooth; marginal line somewhat flexuous, reflected in front; dorsal valve the larger, rather produced posteriorly and truncated; perforation very small, entire; cardinal area rather wide, with united deltidia marked by a mesial groove; ventral valve oval, anteriorly slightly attenuated and rounded, its marginal line slanting downwards from the apex on each side; internal appendage consisting of a single elevated rib standing out; margin of the valves entire.

From Brazil, according to the late G. Humphrey. In Mr. Cuming's and other collections.

TEREBRATULA RUBICUNDA. (*T. sanguinea*, Quoy, Astr.) *Ter. testâ suborbiculari, posticè subacuminatâ, gibbâ, glabrâ, rubrâ, valvis inæqualibus, subirregularibus; lineâ marginali ad latera subflexuosâ, anticè sinuatâ; valvâ dorsali posticè productâ, truncatâ; foramine magno, obliquo, subintegro; areâ cardinali rotundatâ; deltidiis magnis, distinctis; carinâ dorsali latâ, prominente, utrinque rotundato-angulatâ, obtusâ; valvâ ventrali subpentagonali, posticè angustiori, medianè latâ, rotunduto-subangulatâ; anticè subtruncatâ, sulco mediano lato, conspicuo; ossiculo interno magno, ferè ut in* T. dorsatam *efformato; margine valvarum integro.*

Shell nearly orbicular, rather acuminated posteriorly, gibbous, smooth, of a red colour; valves unequal, rather irregular; marginal line slightly flexuous on the sides, sinuated in front; dorsal valve produced behind, truncated, with a large, oblique, nearly entire perforation; cardinal area rounded, deltidia large, separate; mesial ridge broad, prominent, angularly rounded, and obtuse on both sides; ventral valve somewhat pentagonal, narrow posteriorly, broad in the middle, with rounded angles, and slightly truncated in front; mesial groove broad and distinct; internal appendage as in *T. dorsata*; margin of the valves entire.

From the Moluccas; in Mr. Cuming's collection and in the British Museum.

TEREBRATULA SANGUINEA (*sanguinea*, Chemn.; *T. erythroleuca* of Quoy). *Ter. testâ suborbiculari, anticè subemarginatâ, gibbosiusculâ, tenui, sanguineâ, radiis maculisque radiantibus albidis ornatâ; lineâ marginali rectâ, anticè subsinuatâ; valvâ dorsali posticè subacuminatâ, truncatâ, foramine mediocri, integro, areâ cardinali latiusculâ, marginibus subacutis, deltidiis majusculis, coalescentibus; valvâ ventrali depressiusculâ, transversim obovatâ, anticè subsinuatâ, ossiculo interno primum format radios duos, deindè annulum centralem et amenta duo lateralia, demùm amentum superum integrum.*

Shell suborbicular, slightly notched in front, rather gibbous, thin, of a bright light red colour, with white rays and radiating spots; marginal line straight, slightly sinuated in front; dorsal valve rather acuminated behind and truncated; perforation middle-sized, complete; cardinal area rather broad, with sharpish edges; deltidia rather large and united; ventral valve somewhat depressed, transversely obovate, slightly sinuated in front; the internal appendage at first forms two rays, then a central ring and two lateral loops, and at length a reflected dorsal loop united to the central ring; margin of the valves entire.

From the island of Zebu, attached to coral under stones; H. Cuming.

TEREBRATULA INCONSPICUA. *Ter. testâ rotundato-subtrigonali, posticè acuminato-rotundatâ, anticè subsinuatâ, obscurè rufâ; valvis inæqualibus, glabris; lineâ marginali flexuosâ; valvâ dorsali rotundato-subtrigonâ, maximâ incompletâ; areâ cardinali latâ, ad utrumque latus declivi; deltidiis mediocribus, latè discretis; valvâ ventrali transversim oblongâ, subplanulatâ, sulco mediano, lato, subinconspicuo; margine valvarum integro.*

Shell rounded, subtrigonal, acuminated and rounded behind, slightly sinuated before, dull red; valves unequal, smooth; marginal line flexuous; perforation large, incomplete; cardinal area broad, inclining on each side; deltidia of moderate size, widely separated; ventral valve transversely oblong, somewhat flattened, with a broad, rather indistinct mesial groove; margin of the valves entire.

From the late G. Humphrey's collection: locality unknown.

TEREBRATULA PULCHELLA. *Ter. testâ subovatâ, posticè acuminato-rotundatâ, lævi, albidâ, lineis nonnullis radiantibus rufis; valvis inæqualibus; lineâ marginali subflexuosâ; valvâ dorsali subplanulatâ, posticè acuminatâ, anticè rotundatâ, foramine magno, incompleto; areâ marginali inconspicuâ, lateribus rotundatis; deltidiis parvis, discretis; valvâ ventrali subcirculari, planulatâ; ossiculo interno e gnomone porrecto, anticè posito, constante; margine valvarum integro.*

Shell subovate, acuminated and rounded behind, smooth, whitish with a few radiating red lines; valves unequal, marginal line somewhat flexuous; dorsal valve rather flattened, acuminated posteriorly, rounded in front; perforation large, incomplete; cardinal area indistinct, its sides rounded; deltidia small, separate; ventral valve

somewhat circular, flattened; internal appendage consisting of a single prominent gnomon near the front; margin of the valves entire.

Found by Mr. Cuming attached to corals at Calapan, isle of Mindoro; also from the island of Cocos, Lieut. Swainson; in the late G. Humphrey's collection.

TEREBRATULA COGNATA, Chemn. *Ter. testâ subtrapezoidali, anticè rotundatâ, pallescente, nonnunquam rubente; valvis inæqualibus, radiatim obsoletè striatis, versus marginem obliteratis; lineâ marginali lateraliter anticèque flexuosâ; valvâ dorsali convexâ, lirâ medianâ inconspicuâ; apice subacuminato reflexo; foramine magno, haud integro; areâ cardinali angustâ, deltidiis parvis, trigonalibus; valvâ ventrali planulatâ, margine postico rectiusculo; sulco mediano subperspicuo; ossiculo interno ramulos duos centrales, divergentes, ad apices expansos sistente; margine interno valvarum denticulato.*

Shell nearly trapezoidal, rounded in front, of a pale colour, sometimes reddish; valves unequal, obsoletely radiately striated, the striæ entirely obliterated near the margin; marginal line flexuous in front and on the sides; dorsal valve convex, with an inconspicuous central ridge, its apex somewhat acuminated, reflected, with a large incomplete perforation; cardinal area narrow, with small triangular deltidia; ventral valve flattened, its posterior margin nearly straight, with a scarcely evident central furrow; internal appendages consisting of two little central diverging branches, expanded at their apices; margin of the valves denticulated within.

There are two varieties in colour, from South Africa, according to the late G. Humphrey.

TEREBRATULA TRANSVERSA. *Ter. testâ transversim subovatâ, tenui, rudi, glabrâ, pallescente; lineâ marginali subflexuosâ, anticè subsinuatâ; foramine maximo, incompleto; areâ cardinali magnâ, planatâ; deltidiis parvis, longè discretis; carinâ dorsali inconspicuâ, rotundatâ; valvâ ventrali transversim oblongâ, anticè rotundatâ, posticè in angulo obtusissimo desinente; sulco mediano subinconspicuo, rotundato; margine valvarum integro.*

Shell transversely subovate, thin, rugose, smooth, of a pale colour; marginal line somewhat flexuous, slightly sinuated in front; dorsal valve of a somewhat tetragonal ovate form, very obtusely angular behind and reflected; perforation very large, incomplete; cardinal area large and flattened; deltidia small, very distant; mesial ridge rounded, indistinct; ventral valve transversely oblong, rounded in front, and finishing in a very obtuse angle behind; mesial groove rounded; indistinct margin of the valves entire.

In Mr. Norris's collection and in that of Mr. Janelle.

TEREBRATULA RUBELLA, Sow. *Ter. testâ subovatâ, posticè subacuminatâ, subgibbâ, anticè subsinuatâ, rubrâ; valvis inæqualibus, glabris; lineâ marginali rectiusculâ, anticè subsinuatâ; valvâ dorsali posticè subacuminatâ, reflexâ, carinâ medianâ nullâ, sulco mediano obsoletissimo, foramine parvo; areâ cardinali angustâ, ad*

latera rotundatâ, deltidiis majusculis, coalescentibus; valvâ ventrali ovatâ, sulco mediano latiusculo, emarginationem anticam efformante; ossiculo interno ut in T. australi; *margine valvarum lævissimo.*

Shell nearly oval, rather acuminated posteriorly, a little gibbous and slightly sinuated anteriorly; valves unequal, smooth; marginal line nearly straight, a little sinuated in front; dorsal valve rather acuminated posteriorly, reflected, without any mesial ridge, but with a very obsolete mesial furrow; perforation small; cardinal area narrow, rounded at the sides, with rather large united deltidia; ventral valve ovate, with a broad mesial groove forming a sinus in front; internal appendage as in *T. australis.*

From Japan. In Mr. Norris's and Mr. Cuming's collections.

TEREBRATULA LABRADORENSIS. *Ter. testâ suborbiculari, posticè acuminatâ, obtusâ, crassiusculâ, albidâ; valvis valdè inæqualibus, radiatim obsoletè costatis; lineâ marginali subflexuosâ; valvâ dorsali anticè rotundatâ, posticè acuminatâ, obtusâ; foramine magno, integro; areâ cardinali magnâ, subplanulatâ; deltidiis majusculis, coalescentibus; carinâ dorsali inconspicuâ; valvâ ventrali suborbiculari, posticè subacuminatâ; margine valvarum crenulato.*

Shell suborbicular, acuminated behind, obtuse, thickish, whitish; valves very unequal, obsoletely radiately ribbed; marginal line somewhat flexuous; dorsal valve rounded in front, acuminated and obtuse behind; perforation large, entire; cardinal area large, somewhat flattened; deltidia rather large, united; mesial ridge indistinct; ventral valve nearly orbicular, slightly acuminated behind; margin of the valves crenulated.

In the British Museum. From Labrador; C. Goodsir.

TEREBRATULA ALGOENSIS. *Ter. testâ suborbiculari, posticè subacuminatâ, anticè sublobatâ, albidâ; valvis radiatim striatis; carinâ dorsali conspicuâ, rotundatâ; foramine magno, incompleto; margine valvæ dorsali minutissimè crenulato.*

Shell suborbicular, slightly acuminated behind, rather lobed in front, whitish; valves radiately striated; mesial ridge distinct, roundish; perforation large, incomplete; margin of the dorsal valve very minutely crenulated.

A single valve of this specimen is in the British Museum, labelled "Algoa Bay, Bowerbank."

"Descriptions of new species of *Marginella.*" By G. B. Sowerby, F.L.S.

MARGINELLA FUSCA. *Marg. testâ elongatâ, subovali, posticè subangulatâ, anticè latè marginatâ, in medio paululùm contractâ, fuscâ, vel pallidè purpureâ, fusco-trifasciatâ; spirâ breviusculâ, apice obtuso; aperturâ angustâ, columellâ rectiusculâ, plicis quatuor, quarum duæ anticæ albæ, prominentibus, spiraliter elongatis; labio externo albo, intus in medio incurvo, extus fusco, latè reflexo.*

Differing from *M. nitida* in the colouring and the shortness of the spire, and in the outer lip being more broadly reflected.

In Mr. Cuming's collection. From the West Indies.

MARGINELLA CRASSILABRUM. *Marg. testâ subovali, in medio subangulatâ, pallidè griseo-fulvâ; spirâ brevi; anfractibus distinctis, ultimo dilatato, ad spiram elevato; columellâ plicis quatuor, quarum duæ anticæ prominentes, spiraliter elongatis; labio externo, crasso, latè incurvo, angulato, extus varicoso, ad apicem tumidè elevato.*

This species is remarkable for the broad angular disc formed by the outer lip, which is much thickened at the back and raised so as nearly to cover the spire.

In Mr. Jackson's and Mr. Cuming's collections. From the West Indies.

MARGINELLA TÆNIATA. *Marg. testâ ovali, cylindricâ, pallidè fulvâ, fasciis fuscis tribus cinctâ; spirâ brevi; aperturâ elongatâ, posticè subangustatâ; columellâ plicis quatuor, quarum duæ anticæ majores; labio externo lævi, latè reflexo.*

Differing from *M. avena* in having a shorter spire and the outer lip more broadly reflected.

In Mr. Cuming's collection. Locality unknown.

MARGINELLA ALBO-CINCTA. *Marg. testâ subconicâ, subangulatâ, lævi; spirâ productâ; anfractibus angulatis, ultimo fasciâ albâ prope angulum, et altero ad terminum anticum cincto inter fascias fusco maculato et punctis nigris picto; columellâ quadriplicatâ.*

Provisionally described from a young specimen in Mr. Cuming's collection. When full-grown it would probably resemble *M. nubeculata* in form.

MARGINELLA PSEUDO-FABA. (*M. Faba*, Lam. Anim. s. vert., vii.) *Marg. testâ angulatâ, anticè attenuatâ, subrecurvâ, pallidè fulvâ, griseo-nebulatâ, punctorum irregularium seriebus* 10 *sparsim cinctâ; spirâ prominulâ; anfractibus angulatis, ad angulum validè crenulatis, crassis, paululùm arcuatis, posticè angulatis, anticè emarginatis, attenuatis.*

Much more angular than the true *M. Faba*, and has the anterior part of the body-whorl tapering and bent upwards.

In Mr. Cuming's collection. From the river Gambia, West Africa.

MARGINELLA FAUNA. *Marg. testâ ovali, subcylindricâ, pallidissimè carneâ, spirâ brevi; columellâ obliquè quadriplicatâ; labio prope medium incurvo, extus subincrassato.*

Slightly resembling *M. pallida*, but more oval; the lower part of the aperture less open, and the outer lip thicker.

In Mr. Cuming's collection. From the isle of Curasso.

MARGINELLA MULTILINEATA. *Marg. testâ ovali, stramineâ, lineis rubris numerosis cinctâ; spirâ penè celatâ, apice fasciâ rubrâ circulari cincto; aperturâ anticè et posticè emarginatâ; columellâ albâ,*

in medio tumidâ, anticè callosâ, plicis quatuor ad quinque inæqualibus; labio externo albo, intus crenulato, in medio subangulato, extus tenuiter reflexo.

On the whole resembling *tessellatus*, but it is much shorter, with the outer lip less varicose on the outside, and coloured by numerous red lines instead of the square patches.

In Mr. Cuming's collection. From Belieze, bay of Honduras; Mr. Dyson.

MARGINELLA VARIA. *Marg. testâ elongatâ, lævi, anticè expansâ, albâ, vel fuscâ, vel fusco vel rubro trifasciatâ, vel purpureo longitudinaliter et spiraliter interruptim fasciatâ; spirâ plus minusve productâ; aperturâ posticè angustâ, anticè subexpansâ; columellâ quadriplicatâ; labio externo in medio incurvo, extus leviter varicoso.*

Differing from *M. lactea* of Kiener in being wider at the anterior termination, and in the outer lip not being so much elevated.

From the West Indies. Varieties are from Belieze, bay of Honduras.

MARGINELLA SIMILIS. *Marg. testâ ovali, stramineâ, griseo-nebulatâ, lineis creberrimis interruptim cinctâ; spirâ penè celatâ; aperturâ angustâ, anticè et posticè emarginatâ; columellâ spirâ tumidâ, anticè varicosâ, irregulariter septemplicatâ; labio externo posticè spiram paululùm superante, intus crenulato, extus nigro maculato vix marginato.*

The spire is less concealed, and the margin of reflected lip less distinct than in *M. interrupta*. The colouring is more mottled.

In Mr. Cuming's collection. From the Brazils.

October 27, 1846.

Richard C. Griffith, Esq., in the Chair.

No business was transacted.

November 11, 1846.

George Gulliver, Esq., F.R.S., in the Chair.

A paper was read entitled "Notes on certain species of birds from Malacca," by H. E. Strickland, F.G.S.

Having lately examined a collection of Malacca birds belonging to the Yorkshire Philosophical Society, comparing them with specimens in my own cabinet, and with the descriptions given by MM. Temminck, Blyth, Eyton and other authors, I have thrown together such remarks as appeared necessary for the elucidation of their characters and synonymy. For some of the identifications of species I am indebted to Mr. Blyth's letters to myself*.

Athene scutulata (Raff.), (*Strix hirsuta*, Temm., *Ninox nipalensis*, Hodgs.)—This is the *Athene malaccensis* of Mr. Eyton, Ann. Nat. Hist., v. xvi. p. 228.

Caprimulgus macrurus, Hors.—Differs from the *C. albonotatus*, Tickell, of India, in its smaller size, being only about 11 inches in total length, wing 7½, tail 5½, and in its darker colour. It appears to be the same as the *C. macrurus* from North Australia figured by Mr. Gould, except in wanting the second white patch seen on the breast in his figure.

Cypselus affinis, Gray.—Rather larger and of a deeper black than Indian specimens, but I do not venture to separate them. Wing 5¼ inches, tail 2⅛.

Ceyx tridactyla, (Pall.)—Much confusion has existed in the synonyms of this and the next species. The present one is distinguished by the whole back and wing-covers being black, each feather terminated with deep blue. It is well-figured by Mr. Jerdon in plate 25 of his 'Illustrations of Indian Ornithology.' It is found in South India and the Malay Peninsula. The following synonyms refer to it:—*Ceyx luzoniensis*, Steph.; *Alcedo purpurea*, Gm.; *A. erithaca*, β. Lath.; *Ceyx microsoma*, Burton; Sonn. Voy. Nouv. Guin., pl. 32; Buff. Pl. Enl., 778. f. 2.; Penn. Gen. Birds, pl. 5.

Ceyx rufidorsa, Strickland. *C. capite, dorso, tectricibus caudâque totis læte rufis, splendore lilacino variantibus; corpore subtus aurantio-flavo, mento albo, loris et maculâ aurium obscure cæruleo-nigrâ.*

This species, which also occurs at Malacca, is very closely allied to the last, but differs in having the beak larger in all its dimensions,

* Since this paper was written I have seen some rectifications of synonyms by Dr. Hartlaub, Rev. Zool. 1846, p. 1, which nearly agree with those here arrived at.

and in having the whole back and wing-covers, as well as the crown, rump and tail, rufous, with a brilliant lilac tint. The dark blue spot on the front and ears is much less marked than in *C. tridactyla.* Lower parts orange-yellow; chin white. This bird was supposed by Pallas, in his 'Spicilegia Zoologica,' part 6, p. 13, to be the female of *C. tridactyla.* It is figured by Messrs. Jardine and Selby in the 'Illustrations of Zoology,' ser. 1. pl. 55. f. 2. as *C. tridactyla.* Mr. Jerdon, in his 'Illustrations of Indian Zoology,' refers this bird to *Alcedo madagascariensis,* Lin.; but as that bird is distinctly described by the accurate Brisson as having four toes, it must be a true *Alcedo,* and I have therefore given a new specific name to the present bird.

Prionochilus thoracicus, (Tem.), Pl. Col. 600. f. 1.—Temminck's specimens were from Borneo, an island which has but few species in common with the peninsula of Malacca. This is closely allied to *P. percussus,* which I adopted as the type of my genus *Prionochilus.* This genus is very near to *Dicæum,* and has the stoutest and shortest beak of all the *Nectariniidæ.* Many systematists would place it near *Pipra* or *Pardalotus,* but the finely serrated mandibles point out its true affinities.

Dicæum chrysorrhœum, Tem. Pl. Col. 478.—Judging from the similarity of plumage in the young of *Prionochilus percussus,* I suspect that this bird is either the female or young of some other species of *Dicæum.*

Phyllornis moluccensis (Gray), Zool. Misc.—This is the *P. malabaricus* of Tem. Pl. Col. 512. f. 2. and of Blyth, Journ. As. Soc. Beng. 1843, p. 957, but is not the true *malabaricus* of Sonnerat and Scopoli, which has been rediscovered in South India by Mr. Jerdon, and is a larger bird, with the head green and the forehead orange. The last is the *P. cæsmarhynchus* of Tickell. In *P. moluccensis* the whole top and sides of the head are a clear yellow, surrounding the black of the chin and throat, and passing into golden yellow on the hind neck. A small spot on each side of the maxilla indigo-blue. Rest of body green; lesser wing-covers azure, primaries and lateral rectrices externally greenish blue. *P. aurifrons* of Nepal differs from both the above in the chin being blue, &c.

Parus flavocristatus, Lafr. (*Melanochlora sumatrana,* Less.; *Cratai-onyx ater,* and *flavus,* Eyton; *Parus sultaneus,* Hodgs.)—One of the Malacca specimens is fully as large and as long-crested as Mr. Hodgson's Nepal ones. This is a perfectly typical *Parus,* and is the largest species which I know except the so-called *Oreoica cristata* of Australia, which I also consider a true *Parus.*

Pitta cyanura, Gm. (*M. affinis,* Horsf.)—An immature specimen; exhibits plain blue feathers in various parts of the abdomen, which appear to be supplanting the barred black and rufous feathers commonly seen in this species.

Turdus modestus, Eyton.—One of the specimens before me, probably a fully adult, has the whole throat cinereous brown, and only the tip of the chin white.

Criniger gularis (Horsf.), (*Ixos phæocephalus*, Hartl.; *Trichophorus cæniceps*, Lafr.; *Pycnonotus rufocundatus*, Eyton).—This is a true *Criniger*, though the beak is rather wider than in the type species.

Pycnonotus cyaniventris, Blyth, Journ. As. Soc. Beng. (*Malacopteron aureum*, Eyton).—The smallest species of *Pycnonotus* with which I am acquainted. Mr. Blyth makes it the type of his genus *Ixidia*.

Pycnonotus melanocephalus (Gm.), (*Ixos atriceps*, Tem. Pl. Col. 147.)—This seems to be the *Ixos metallicus* of Mr. Eyton, in which case the length, eight inches, assigned by him (Ann. Nat. Hist. v. xvi. p. 228), is probably a misprint, as the specimens before me hardly exceed six inches.

Pycnonotus crocorrhous, Strickl., Ann. Nat. Hist. v. xiii. p. 412.—A specimen before me has the vent pale scarlet, and is evidently the *Hæmatornis chrysorrhoides*, Lafr., Rev. Zool. 1845, p. 367, but is otherwise identical with that formerly described, in which the vent is ochreous-yellow. These differences may be sexual. It differs from *Pycnonotus hæmorrhous* of Southern India in having the ear-covers and lower parts nearly white, and in other respects.

Myiagra pyrrhoptera (Tem.), Pl. Col. 596. f. 2. (*Muscipeta plumosa*, Blyth; *Philentoma castanea*, Eyton.)—This bird is intermediate between *Myiagra* and *Muscipeta*, but the development of the uropygial feathers alluded to by Mr. Eyton is hardly sufficient to form a generic distinction. It is probable that the long downy feathers of the lower back and rump, which admit of being expanded laterally, like an umbrella, over the wings, and which we meet with in many distinct groups of tropical Insessores, as the *Formicariinæ* of America, the *Laniariinæ* of Africa, and the *Pycnonotinæ* and *Timaliinæ* of Asia, may be a provision of nature against the violent and long-continued rains of the torrid zone. The species of Flycatcher before us, and the one which follows, may, from their mode of life or geographical distribution, be more exposed to rain than the other species of *Myiagra*, and may be provided with extra clothing accordingly.

Myiagra pectoralis, Lord Arthur Hay in Madras Journ., March 1846.—This is another species, in which the dorsal and hypochondrial feathers are lengthened and thickened, even to a greater degree than in the last. The whole plumage is uniform plumbeous blue, except the lores and chin, which are blackish; the flanks, which are streaked with whitish; and the inner webs of the remiges and rectrices, which are black. Beak and legs black, the former strong, the rictal bristles reaching two-thirds of its length. The first three remiges graduated, the fourth and fifth equal. Total length, 7½ inches; beak to front, 7 lin.; to gape, 11 lin.; height, 2½ lin.; breadth, 4½ lin.; wing, 3 in. 10 lin.; medial rectrices, 3½ in.; external ditto, 3 in. 5 lin.; tarsus, 7 lin. A younger specimen is marked with rufous on the wing-covers, abdomen and lower tail-covers. According to Lord A. Hay, the above-described is the female, the male having the breast claret-coolured, a state of plumage which I have not seen.

PERICROCOTUS MODESTUS, Strickland. *P. corpore supra cinereo subtus albo, remigibus atris, primariis 5 ad 9 et secundariis omnibus fasciâ subbasali albâ; rectricibus atris, albo large terminatis.*

Above uniform cinereous; front whitish; lores black; remiges blackish, the medial portion of their inner webs white; the fifth to ninth primaries and all the secondaries with a sub-basal white bar on the outer webs; rectrices blackish, largely tipped with white; chin and lower parts white. Length, 8 inches; beak to front, 5½ lines; to gape, 9 lines; breadth, 3 lines; wing, 3¾ inches; medial rectrices, 3½ inches; external ditto, 1½ inch; tarsus, 8 lines; middle toe and claw, 8 lines; hind ditto, 5 lines.

This is a typical species, but is at once distinguished from all the other known species of *Pericrocotus* by the absence of red or yellow in the plumage.

Dicrurus malabaricus, Scop. (*D. rangoonensis*, Gould; *D. retifer*, Tem.)—Racquet-tailed *Dicrurus*, with a very short erect frontal crest.

Dicrurus balicassius (*D. affinis*, Blyth).—This seems to be the true *balicassius* of Linnæus, judging from Brisson's description, though I have never seen a specimen from the Philippine Islands to compare with the Malacca bird.

Lanius lucionensis, Lin.—Having now examined many specimens from the Philippines, Malacca and British India, I find so many variations in the rufous tint of the upper parts, the amount of white on the forehead, and the size of the beak, that I am compelled (contrary to my former opinion, Ann. Nat. Hist., v. xiv. p. 44) to regard them as forming one widely-spread and variable species. The Malacca specimens exhibit a considerable amount of variation in the size of the beak, and the Philippine ones are generally less rufous than those from India. If this view of specific identity be correct, *Lanius cristatus*, Lin.; *L. superciliosus*, Lath.; *L. phœnicurus*, Pallas; *L. magnirostris*, Bélanger; *L. melanotis*, Valenciennes; *L. ferrugiceps*, Hodgson; and *L. strigatus*, Eyton, will all stand as synonyms of *Lanius lucionensis*, Lin.

Eupetes macrocercus, Tem.—This form appears to belong to the subfamily *Timaliinæ*, a group chiefly confined to the Malasian archipelago and the peninsula of Malacca, and which seems to me to include the following genera: *Timalia* proper, *Brachypteryx*, *Malacopteron*, *Macronus*, and one or two others. They are distinguished by great density of plumage, especially on the rump, a more or less shrike-like beak, well-developed legs, and a coloration in which rufous and brown predominate. Little is known of their habits, but they probably form a subfamily of the *Laniidæ*, and may be placed next to *Formicariinæ*, in which most of the South American *Thamnophili* and Antcatchers should be included.

MALACOPTERON OLIVACEUM, Strickland. *M. supra olivaceo-brunneum, remigibus fuscis, extus rufo-brunneo, intus albido margi-*

natis; rectricibus rufo-brunneis, rufo marginatis; loris superciliisque cinerascentibus, mento et guld sordide albidis, pectore lateribusque pallide olivaceis, abdomine pallide fulvo, crisso pallide rufo.

Upper parts olive-brown; remiges fuscous, edged externally with reddish brown and internally with whitish; tail reddish brown, margined externally with rufous. Lores and streak over eye greyish, chin and throat dirty white; breast and sides pale olive-brown; belly pale fulvous; vent and lower tail-covers light rufous; upper mandible fuscous, lower yellowish; feet and claws yellowish brown. Total length, 6 inches; beak to front, 10 lines; to gape, 1 inch; height, 3 lines; breadth, 3½ lines; wing, 2 inches 10 lines; medial rectrices, 2¼ inches; external ditto, 2 inches; tarsus, 1 inch; middle toe and claw, 11 lines; hind ditto, 9 lines.

Malacopteron macrodactylum, Strickland in Ann. Nat. Hist., v. xiii. p. 417.—Since described as *Brachypteryx albogularis* by Dr. Hartlaub, Rev. Zool. 1844, p. 401. It is however a true *Malacopteron*, which genus differs from the type of *Brachypteryx* by its shorter legs and by the beak, in which the shrike-like form is developed to the greatest extent of all the *Timaliinæ*. *Brachypteryx sepiaria* of Horsf. is a *Malacopteron**.

Timalia pectoralis, Blyth (= *Malacopteron squamatum*, Eyton).

Timalia nigricollis, Tem. Pl. Col. 594. f. 2. (*Brachypteryx nigrogularis*, Eyton; *Timalia erythronotus*, Blyth).—This is a typical *Timalia*.

Timalia erythroptera, Blyth, Journ. As. Soc. Beng. (*Timalia pyrrhophæa*, Hartl.; *Brachypteryx acutirostris*, Eyton).—A true *Timalia*.

Amadina acuticauda, Hodgs. in Asiatic Researches, v. xix.—A well-marked species intermediate between *A. striata*, Lin., and *A. punctularia*, Lin.

Agapornis? malaccensis, Lath. sp.—In the descriptions hitherto given of this bird no mention is made of the deep brownish red feathers on the radial margin of the wing. Mr. Blyth makes of this bird his genus *Psittinus*.

Tiga Rafflesi, Vig.—The only description which I can find of this curious bird is in the classified list given by Mr. Vigors of the animals of Java and Sumatra, published in the Appendix to the edition of the 'Life of Sir Stamford Raffles.' As few persons think of looking into a biographical work for a treatise on zoology, this paper is less known than it deserves to be, and I therefore extract the diagnosis given by Mr. Vigors of the species before us:—

Picus rafflesi, Vig., l. c. p. 669. P. supra flavescenti-brunneus, subtus brunneus; capite coccineo; gulâ pallide ferrugineâ; strigis, unâ ab oculis, secundâ a rictu extendentibus maculisque ad latera abdominis albis; strigis duabus ad latera genarum, alterâ parvâ superciliari; remigibus rectricibusque nigris.

* Mr. Blyth makes my *M. macrodactylum* the type of his genus *Turdinus*, but I cannot approve of genera founded on such very slight distinctions.

The specimen before me is a female, and has the crown and elongated crest-feathers wholly deep black; the upper parts are yellowish olive and the lower olive-brown; all the remiges have three round white spots on the inner webs of each; the lower wing-covers are pale yellowish, margined with brown. In all other respects the bird agrees with the description above-quoted. Its total length is 10½ inches; beak to front, 1¼ inch; to gape, 1½ inch; wing, 5½ inches; medial rectrices, 4¾ inches; external ditto, 2½ inches; tarsus, 10½ lines; middle toe and claw, 13 lines; reversed ditto, 10 lines; hind-toe entirely wanting.

The beak is of moderate length, the culmen nearly straight, the gonys ascending, the apex compressed, a slight but distinct ridge running parallel to the culmen, and the nostrils are covered with incumbent feathers. As the *Tiga tridactyla* resembles in its style of plumage the orange-backed woodpeckers, *Brachypternus* and *Chrysocolaptes*, so the more uniform coloration of this species calls to mind the green woodpeckers which form the typical *Gecini*. But the beak is stronger and more adapted for chopping wood than in the latter group, and resembles more the structure of that organ in the red-winged and yellow-crested *Gecini*, such as *G. nipalensis* (Gray), *G. mentalis* (Tem.), &c.

Tiga tridactyla.—Identical with specimens sent by Mr. Jerdon from Madras, except in being smaller. The wing measures only 5 inches, while in the Madras ones it is 5¾ inches. Mr. Blyth has already noticed this distinction, but I cannot consider it as a specific one.

Hemicercus rubiginosus, Swains. Birds W. Af. v. 2. p. 150. (*Picus rubiginosus*, Eyton.)

Hemicercus concretus (Tem.), Pl. Col. 90. (*Dendrocopus sordidus*, Eyton.)

Cuculus Sonnerati, Lath.—This species, which occurs also in Southern India, appears never to assume a typically adult plumage, being invariably barred with brown and rufous above, and brown and white below.

CENTROPUS RECTUNGUIS, Strickland. *C. corpore nitide cæruleo-nigro, alis rufis, primariis fusco terminatis, ungue hallucis subbrevi, recto.*

Body and tail glossy black, with a deep blue tint on the head, neck and breast; wings wholly rufous, the primaries slightly tipped with fuscous; hind-claw short and straight. Total length, 14–15 inches; beak to front, 1¼ inch; to gape, 1½ inch; height ½ inch; width, ½ inch; wing, 6 inches; medial rectrices, 7½ inches; external ditto, 6½ inches; tarsus, 1¾ inch; claw of hind-toe, ½ inch. Nearly allied in size, form of beak and coloration to *C. philippensis*, Buff. Pl. Enl. 824. (*C. bubutus*, Horsf.) of India, Java and the Philippines; but differs in the shorter wings and tail, and in the hind-claw being almost perfectly straight, and only half an inch long; while in *C. philippensis* (sent by Mr. Jerdon from Madras) this claw is three-

quarters of an inch long and considerably curved; the wing measures 7½ inches and the tail 10 inches.

Treron Capellei (Tem.), Pl. Col. 143.—The largest of the genus, and erroneously named *militaris*, in many museums. I inadvertently described this as new, under the name of *magnirostris* in the Ann. Nat. Hist., v. xiv. p. 116.

Treron fulvicollis (Wagl.), (*T. tenuirostre*, Eyton.)

Rollulus niger.—The female of this bird has been described by Mr. Vigors under the name of *Cryptonyx ferrugineus*, and by Mr. Eyton as *Perdix æruginosus* (Proc. Zool. Soc. part 7. p. 106). It departs from the type of *Rollulus* in possessing a rudimentary hind claw.

Turnix pugnax, Tem. Pl. Col. 60. f. 2.—This seems to be the *Hemipodius atrogularis* of Mr. Eyton, Proc. Zool. Soc. part 7, p. 107.

Rallus striatus, Lin. (*Rallus gularis*, Horsf., Blyth, &c.)—I have specimens of this species from the Philippine Islands, Malacca and Madras, which present no specific difference, and which exactly agree with Brisson's description of his *Rallus philippensis striatus*, on which *R. striatus*, Lin., is founded.

November 24, 1846.

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

Mr. Gould exhibited to the Meeting, named and described three Australian Birds collected by the late Mr. Gilbert, viz :—

PETROICA SUPERCILIOSA. *Pet. strigâ superciliari, gulâ, abdomine, et humeris infrà, albis; loris, auribus, et alarum tectricibus, atris; primariis et secondariis, ad basin albis, ad mediam intensè atris; alis, caudâque fuligineis; rectricibus, intermediis duabus exceptis, ad apices albis.*

Superciliary stripe, throat, abdomen, under surface of the shoulder, and the base of the primaries and secondaries white; lores, ear-coverts, wing-coverts, and the primaries and secondaries for some distance beyond the white, deep black; all the upper surface, wings, and tail, sooty-brown; all but the two central tail-feathers largely tipped with white; bill and feet black; irides reddish brown.

Total length 5 inches; bill, $\frac{3}{4}$; wing, 3; tail, $2\frac{1}{2}$; tarsi, $\frac{7}{8}$.

Hab. The neighbourhood of the Burdekin Lakes, in the interior of Australia.

POËPHILA LEUCOTIS. *Poë. vittâ in fronte, loris, gulâque, et maculâ magnâ quoque in latere, intense holosericis nigris; auribus, linea attenuatâ nigrum in gulâ colorem infrà marginante, et spatio maculam in latera circumdante, albis; vertice, omni superiore corpore, alisque, saturatè cinnamomeis; pectore, et abdomine, pallidè vinosis; tectricibus caudæ superioribus inferioribusque albis.*

Band crossing the forehead, lores, throat, and a large patch on each flank, deep velvety black; ear-coverts, narrow line beneath the black of the throat, and a space surrounding the black patch on the flanks, white; crown of the head deep reddish chestnut; all the upper surface and wings dark cinnamon-brown; chest and abdomen pale vinous brown; upper and under tail-coverts white, the former margined externally with deep black; tail black; irides dark brown; feet red; bill yellowish horn-colour.

Total length, $4\frac{3}{8}$ inches; bill, $\frac{3}{8}$; wing, $2\frac{1}{4}$; tail, $2\frac{1}{4}$; tarsi, $\frac{5}{8}$.

The female is somewhat smaller and not quite so brightly coloured.

Hab. The neighbourhood of the river Lynd, in the interior of Australia.

Remark.—Nearly allied to *P. personata.*

CLIMACTERIS MELANOTUS. *Cli. strigâ superciliari, gulâque, albo-cervinis; lineâ ante oculum, alterâ post oculum, omni superiore corpore, alis, caudâque, saturatè fusco-nigris; primariis, secondariis, tertiariisque ad basin, et humeris infrà stramineis; corpore*

inferiore vinoso; singulâ abdominis plumâ lineis duabus spatium album marginantibus nigris longitudinaliter prope caulem ornatâ.

Superciliary line and throat buffy-white; line before and behind the eye, all the upper surface, wings, and tail, dark brownish black; the base of the primaries, secondaries, and tertiaries, and the under surface of the shoulder buff; under surface pale vinous brown; the feathers of the abdomen with two stripes of black running parallel to and near the stem, the space between dull white; at the base of the throat several irregular spots of black; under tail-coverts buffy-white, crossed by broad bars of black; irides brown.

Total length, $5\frac{1}{2}$ inches; bill, $\frac{3}{4}$; wing, $3\frac{1}{2}$; tail, $2\frac{1}{2}$; tarsi, $\frac{7}{8}$.

The female differs in having the markings of the abdomen larger and more conspicuous, and in having the spots at the base of the throat chestnut instead of black.

Hab. The neighbourhood of the river Lynd, in the interior of Australia.

Remark.—Nearly allied to *C. melanura* and *C. scandens*.

December 8, 1846.

George Gulliver, Esq., F.R.S., in the Chair.

A paper was read containing descriptions of 38 new species of Land-shells, in the collection of Hugh Cuming, Esq., by Dr. L. Pfeiffer:—

1. Parmacella Cumingi, Pfr. *Parm. testâ depresso-semiovatâ, tenuissimâ, striatâ, lineis spiralibus subtiliter decussatâ, diaphanâ, pallidè virenti-corneâ vel (in adultis) succineâ; spirâ vix prominulâ, subpapillatâ; anfractibus 2; columellâ arcuatâ, acutâ.*
Long. 6, lat. 6, alt. 2¾ mill.
From the island of Juan Fernandez (H. Cuming).

2. Succinea pallida, Pfr. *Succ. testâ ovato-conicâ, solidiusculâ, longitudinaliter ruguloso-striatâ, diaphanâ, pallidè stramineâ; spirâ acutâ; anfractibus 4 convexis; columellâ leviter arcuatâ, filari, supra basin aperturæ ovalis subtruncatâ; peristomate margine subincrassato.*
Long. 13, lat. 7, alt. 6½ mill.; apert. 8½ mill. longa.
From Tahiti (H. Cuming).

3. Succinea semiglobosa, Pfr. *Succ. testâ ovato-semiglobosâ, tenui, lævigatâ, nitidissimâ, lutescenti-corneâ; spirâ vix prominulâ, obtusâ; anfractibus 2, ultimo ventroso; columellâ strictiusculâ, obliquè recedente; aperturâ rotundato-ovali.*
Long. 8, lat. 6½, alt. 4 mill.; apert. 7½ mill. longa.
From the island of Massafuera, Chile (H. Cuming).

4. Succinea Tahitensis, Pfr. *Succ. testâ ovatâ, striatulâ, tenui, vix nitidâ, pellucidâ, pallidè succineâ; spirâ brevi, obtusiusculâ; anfractibus 2½ convexis, ultimo ovato; columellâ leviter arcuatâ, medio obsoletè (interdum distinctè) angulatâ; aperturâ regulariter ovali; peristomate expansiusculo.*
Long. 12, lat. 7, alt. 4½ mill; apert. 8⅔ mill. longa.
From Tahiti (H. Cuming).

5. Helix Lindoni, Pfr. *Hel. testâ imperforatâ, semiglobosâ, tenui, irregulariter striatulâ, supernè opacâ, albidâ, punctis castaneis conspersâ et lineâ nigricanti-castaneâ ad suturam ornatâ; anfractibus 4½ convexiusculis, ultimo basi planulato, pellucido, corneo-virente, anticè breviter deflexo; columellâ intrante, declivi, subarcuatâ, dilatatâ, introrsum acutâ; aperturâ lunato-ellipticâ; peristomate simplice, recto.*
Diam. 16, alt. 9½ mill.
From the island of Cuba (Lindon).

6. Helix pemphigodes, Pfr. *Hel. testâ imperforatâ, subglobosâ, tenui, membranaceâ, obliquè plicatulâ, diaphanâ, lutescenti-corneâ; spirâ brevi, papillatâ; anfractibus 4 vix convexis, ultimo permagno, carinato, juxta suturam inflato, basi convexo, anticè vix descendente; columellâ simplice, acutâ, subverticali; aperturâ amplâ, ferè circulari; peristomate simplice, acuto, marginibus conniventibus.*
Diam. 18, alt. 12 mill.
From the island of Cuba (Lindon).

7. Helix gradata, Pfr. *Hel. testâ imperforatâ, globoso-turbinatâ, striatulâ, tenui, hyalinâ; spirâ turbinatâ, ad apicem acutâ; anfractibus 6 convexiusculis, gradatis, ultimo medio acutè carinato, basi convexo, sub lente minutissimè concentricè striato; aperturâ subtetragono-lunari; peristomate simplice, acuto, margine columellari verticaliter descendente.*
Diam. 5, alt. 5 mill.
From the island of Leyte (H. Cuming).
Nearly allied to *H. tongana*, Quoy.

8. Helix Barclayana, Pfr. *Hel. testâ umbilicatâ, depresso-turbinatâ, confertim obliquè costatâ, albâ, epidermide fusco-olivaceâ indutâ; spirâ conoideâ, apice obtuso; suturâ profundâ; anfractibus 5½ convexis, ultimo medio carinato (interdum obsoletè bicarinato), basi convexiusculo; umbilico mediocri, ferè cylindrico; aperturâ subverticali, quadrangulari; peristomate simplice, acuto, margine columellari verticaliter descendente, cum basali angulum formante.*
Diam. 18, alt. 12 mill.
From the island of France (Sir D. Barclay).

9. Helix arcuata, Pfr. *Hel. testâ umbilicatâ, orbiculato-convexâ, tenui, pellucidâ, pallidè corneâ, confertim et regulariter arcuato-plicatâ; spirâ latè conoideâ, apice obtusiusculo; anfractibus 6 vix convexiusculis, cariná acutâ, serratâ marginatis, ultimo circa umbilicum magnum, ferè cylindricum subcompresso; aperturâ angulato-lunari, latâ; peristomate simplice, acuto, margine columellari brevi, verticali.*
Diam. 5½, alt. 2¾ mill.
From the province of Cagayan, island of Luzon (H. Cuming).

10. Helix Mighelsiana, Pfr. *Hel. testâ umbilicatâ, globosâ, solidâ, validè et confertim plicatâ, spiraliter obsoletè striatâ, rufâ vel lutescenti-fuscâ; spirâ conoideo-semiglobosâ; anfractibus 5 convexiusculis, ultimo ventroso, anticè vix descendente, circa umbilicum angustum compresso; aperturâ subverticali, rotundato-lunari; peristomate recto, intus albo-labiato, margine columellari dilatato-patente.*
Diam. 19, alt. 15 mill.
From Surigao, island of Mindanao (H. Cuming).

11. Helix Rissoana, Pfr. *Hel. testâ perforatâ, globosâ, tenui,*

striatâ, diaphanâ, vix nitidâ, rufâ; spirâ conoideâ, obtusiusculâ; anfractibus 6 convexiusculis, ultimo subangulato, medio pallidè cingulato, anticè breviter descendente, basi ventroso; aperturâ magnâ, semicirculari; peristomate intus rubello-labiato, breviter expanso, margine columellari in laminam brevem, perforationem semioccultantem reflexo.

Diam. 18, alt. 13 mill.

From Greece (Lieut. Spratt, R.N.).

12. Helix dictyodes, Pfr. *Hel. testâ angustè umbilicatâ, depressâ, sublenticulari, obliquè plicato-striatâ, tenuiusculâ, diaphanâ, pallidè corneâ, fusco subtiliter reticulatâ et maculis castaneis juxta suturam et carinam ornatâ; spirâ latè conoideâ; anfractibus 7 vix convexiusculis, ultimo acutè carinato; aperturâ subverticali, depressâ, lunari, intus margaritaceâ; peristomate simplice, margine columellari breviter dilatato-patente, basali sinuoso, reflexiusculo.*

Diam. 27, alt. 12 mill.

From New Guinea (Ince).

13. Helix lignaria, Pfr. *Hel. testâ imperforatâ, subglobosodepressâ, solidâ, lævigatâ, castaneâ, fasciis variis epidermidis hydrophanæ, fusco-cinereæ obductâ; spirâ vix elevatâ, obtusâ; anfractibus 4½ vix convexiusculis, celeriter accrescentibus, ultimo ad peripheriam subangulato; columellâ strictiusculâ, perobliquâ, latâ, planatâ, fuscâ; aperturâ rotundato-lunari, intus albidâ; peristomate subincrassato, brevissimè reflexo, fusco-marginato.*

Diam. 45, alt. 27 mill.

From Surigao, island of Mindanao (H. Cuming).

14. Helix crassilabris, Pfr. *Hel. testâ imperforatâ, depressâ, crassâ, ponderosâ, irregulariter striatâ et undique granulatâ, albidâ, lineis spiralibus, undulatis, fuscis, fasciâque unicâ ad peripheriam ornatâ; spirâ vix elevatâ, distinctè granulatâ, apice nudo, albo; anfractibus 4½ planiusculis, sensim accrescentibus, ultimo minutissimè granulato, medio subcarinato, anticè vix descendente; aperturâ obliquâ, semiellipticâ, intus albâ; peristomate undique incrassato-reflexo, margine dextro subsinuoso, columellari intus obsoletè plicato.*

Diam. 42, alt. 22 mill.

From the island of Cuba (Lindon).

15. Helix Spenglerana, Pfr. *Hel. testâ imperforatâ, depressâ, solidâ, striatâ, nitidâ, pallidè castaneâ; spirâ parum elevatâ, obtusâ; anfractibus 5½, supremis planis, minutissimè granulatis, 2 ultimis convexis, ultimo medio obtusè carinato, basi convexiusculo; aperturâ perobliquâ, lunari, intus fusculâ; peristomate latè expanso, breviter reflexo, marginibus callo nitido junctis, basali sinuoso, reflexo, subappresso, columellari perdilatato, adnato, umbilicum prorsus tegente.*

Diam. 49, alt. 26 mill.

From the island of Jamaica (Gosse).

16. Helix codonodes, Pfr. *Hel. testâ umbilicatâ, globoso-conoideâ, solidâ, obliquè striatulâ, lineis spiralibus confertis subtilissimè sculptâ, nitidâ, albâ, castaneo-bifasciatâ; spirâ campanulatâ, apice obtusiusculo; anfractibus* 5½ *vix convexis, ultimo anticè deflexo, basi juxta aperturam gibboso-subconstricto; aperturâ obliquâ, ferè circulari; peristomate incrassato, reflexo, marginibus approximatis, callo nitido junctis, columellari dilatato, patente, sinuoso.*
Diam. 20, alt. 17 mill.
From the Philippine Islands (H. Cuming).
The described specimen shows a tooth-like protuberance on the inner side of the columella, which seems not to belong to the essential characters of this species.

17. Bulimus castus, Pfr. *Bul. testâ subperforatâ, ovato-conicâ, tenuiusculâ, minutim et obsoletè decussatulâ, hyalino-albidâ, basi et prope aperturam erubescens; spirâ conicâ, acutiusculâ; anfractibus* 5½ *convexiusculis, ultimo spiram paulò superante; columellâ strictiusculâ, filiformi; aperturâ oblongâ; peristomate simplice, roseo, marginibus subparallelis, callo tenui junctis, dextro breviter expanso, columellari brevissimè reflexo, perforationem ferè claudente.*
Long. 19, diam. 9 mill.
From Central America? (Lattre).

18. Bulimus erubescens, Pfr. *Bul. testâ subperforatâ, oblongo-turritâ, læviusculâ, lineis spiralibus sub lente insculptâ, carneo-luteâ, apice rubicundâ; spirâ turritâ, apice acuto; anfractibus* 6 *planiusculis, ultimo spirâ paulò breviore; columellâ supernè subtortâ, basi paulò recedente; aperturâ oblongâ, intus nitide albâ; peristomate simplice, margine dextro expansiusculo, columellari fornicatim breviter reflexo, subappresso.*
Long. 24, diam. 10 mill.
Locality unknown.

19. Bulimus rimatus, Pfr. *Bul. testâ profundè rimatâ, oblongo-turritâ, tenuiusculâ, subarcuatim striatulâ, pallidè corneâ; spirâ turritâ, obtusiusculâ; anfractibus 7 ferè planis, ultimo* ⅔ *longitudinis æquante, basi rotundato; columellâ intus uniplicatâ; aperturâ oblongo-ovali; peristomate simplice, marginibus approximatis, callo junctis, dextro vix expanso, columellari dilatato, patente.*
Long. 33, diam. 11 mill.
Locality unknown.

20. Bulimus Studeri, Pfr. *Bul. testâ perforatâ, oblongo-conicâ, tenuiusculâ, striatulâ, lineis spiralibus confertis sub lente decussatâ, nitidâ, albâ, cingulis angustis, roseis 3–4 ornatâ; spirâ conicâ, acutâ; anfractibus* 6 *vix convexiusculis, ultimo* ⅓ *longitudinis subæquante; columellâ arcuatâ; aperturâ ovali-ellipticâ, intus concolore; peristomate simplice, marginibus subconniventibus, dextro breviter expanso, columellari fornicatim reflexo, roseo.*
Long. 25, diam. 10 mill.
From Central America? (H. Cuming.)

21. Bulimus Moricandi, Pfr. *Bul. testâ perforatâ, ovato-conicâ, tenui, lineis spiralibus subconfertis insculptâ, subdiaphanâ, citrinâ; spirâ conicâ, acutiusculâ; suturâ pallidè submarginatâ; anfractibus 6 vix convexis, ultimo spiram æquante; columellâ strictâ; aperturâ suboblongâ, truncato-ovali, intus concolore; peristomate simplice, breviter expanso, margine columellari supernè breviter patenti-reflexo.*
Long. 24, diam. 12 mill.
From Mount Coban, Central America (Lattre).

22. Bulimus Ehrenbergi, Pfr. *Bul. testâ profundè rimatâ, oblongâ, solidâ, obliquè striatulâ, albidâ; spirâ oblongâ, apice attenuato, obtusiusculo; anfractibus 7½ vix convexiusculis, ultimo ⅖ longitudinis paulò superante; aperturâ angulato-ovali; peristomate incrassato, breviter reflexo, marginibus callo crasso, prope insertionem labri tuberculifero junctis, columellari dilatato, crasso, patente.*
Long. 24, diam. 10 mill.
From Cerigotto, Greece (Lieut. Spratt, R.N.).

23. Bulimus Rossmassleri, Pfr. *Bul. testâ profundè rimatâ, oblongâ, soliduld, confertim rugoso-plicatâ, supernè fusco-corneâ, basi sordidè albidâ; spirâ oblongo-conicâ, apice obtuso; anfractibus 8 vix convexiusculis, ultimo basi rotundato, ⅓ longitudinis æquante; columellâ brevi, strictiusculâ; aperturâ truncato-ovali, intus albâ; peristomate albo-labiato, breviter expanso, marginibus callo tenui, juxta insertionem labri dentifero junctis, columellari dilatato, patente.*
Long. 19, diam. 7 mill.
Locality unknown.

24. Bulimus Draparnaudi, Pfr. *Bul. testâ subobtectè perforatâ, oblongo-subfusiformi, striatulâ, opacâ, nitidâ, albâ, cærulescenti-nebulosâ, strigis nigro-castaneis et brunneis, interdum maculosè interruptis, ornatâ; spirâ turrito-conicâ, ad apicem acutâ; anfractibus 7 convexiusculis, ultimo ⅜ longitudinis subæquante; columellâ rectâ; aperturâ oblongâ; peristomate simplice, acuto, margine columellari dilatato, membranaceo, angulatim reflexo, appresso.*
Long. 28, diam. 11 mill.
β. Minor, interstitiis strigarum castaneo-litturatis.
From Chilon, Bolivia (Bridges).

25. Bulimus Ziegleri, Pfr. *Bul. testâ subperforatâ, ovato-conicâ, tenui, confertim striatulâ, lineis spiralibus sub lente obsoletè decussatâ, albidâ; spirâ conicâ, acutiusculâ; anfractibus 6 vix convexiusculis, ultimo medio subangulato, spirâ paulò breviore; columellâ paulò recedente; aperturâ ovali; peristomate simplice, margine columellari breviter reflexo, subappresso.*
Long. 21, diam. 10 mill.
β. T. pellucidâ, lutescente, fasciis castaneis, supremis maculosè interruptis, cinctâ.
Locality unknown.

26. Bulimus Sayi, Pfr. *Bul. testâ subperforatâ, ovato-oblongâ, solidiusculâ, confertim rugoso-plicatâ, nitidâ, albâ, strigis pellucidis, fuscis ornatâ; spirâ conicâ, obtusiusculâ; anfractibus 6 vix convexis, ultimo spiram subæquante, basi attenuato, circa perforationem obsoletam fusco-areolato; columellâ leviter arcuatâ; aperturâ elliptico-oblongâ, intus fusco-carneâ; peristomate simplice, margine columellari breviter reflexo, subappresso.*
Long. 20, diam. 9 mill.
Locality unknown.

27. Bulimus coniformis, Pfr. *Bul. testâ subperforatâ, ovato-conicâ, tenui, irregulariter striatâ, fuscescenti-albidâ, strigis obliquis, fuscis signatâ; spirâ conicâ, acutiusculâ; anfractibus 5 planiusculis, ultimo spiram paulò superante, medio angulato, basi subcompresso; columellâ leviter arcuatâ; aperturâ ovali, utrinque angustatâ; peristomate simplice, recto, margine columellari supernè dilatato, breviter reflexo.*
Long. 12, diam. 6½ mill.
From Merida, Andes of Bolivia (T. Bridges).

28. Bulimus Sowerbyi, Pfr. *Bul. testâ perforatâ, ovato-conicâ, tenui, sublævigatâ, albidâ, strigis obliquis, castaneis, maculas albas pyramidales et rhomboidales formantibus ornatâ; spirâ conicâ, acutâ; anfractibus 6½ vix convexiusculis, ultimo spiram æquante, medio pallide, juxta basin attenuatam castaneo-unifasciato; columellâ paulò recedente; aperturâ oblongo-ovali; peristomate simplice, recto, margine columellari angulatim latè reflexo, plano.*
Long. 22, diam. 10 mill.
From the Columbian Andes (Lindon).

29. Bulimus porphyrius, Pfr. *Bul. testâ perforatâ, oblongo-attenuatâ, solidiusculâ, confertim et ruditer corrugatâ, castaneâ, strigis albis irregulariter marmoratâ; spirâ conicâ, ad apicem obtusâ; suturâ submarginatâ, irregulariter crenatâ; anfractibus 7 planiusculis, summis subtiliter granulatis, ultimo spirâ paulò breviore; columellâ subrectâ; aperturâ angustâ, oblongâ; peristomate simplice, acuto, margine columellari dilatato, reflexo, carneo-livido, perforationem ferè occultante.*
Long. 51, diam. 20 mill.
From Bolivia (T. Bridges).

30. Bulimus Voithianus, Pfr. *Bul. testâ perforatâ, subfusiformi-oblongâ, solidulâ, rugis longitudinalibus et lineis concentricis impressis ruditer granulatâ, sordidè albâ; spirâ conicâ, ad apicem acutiusculâ; anfractibus 6–7 vix convexiusculis, ultimo spirâ paulò breviore; columellâ subverticali, nigro-castaneâ; aperturâ angustâ, oblongâ, intus castaneâ; peristomate simplice, recto, marginibus callo fusco junctis, columellari dilatato, fornicatim reflexo, perforationem profundam non tegente.*
Long. 19, diam. 7½ mill.
From Chile (T. Bridges).

31. Bulimus castrensis, Pfr. *Bul. testâ angustè umbilicatâ, oblongo-conicâ, lævissimè striatulâ, opacâ, albidâ, strigis spadiceis denticulatis et maculis albis pyramidalibus ornatâ; spirâ conicâ, acutiusculâ; anfractibus 7 vix convexiusculis, ultimo ventrosiore, infra medium lineis nonnullis spadiceis cincto, $\frac{2}{5}$ longitudinis subæquante; columellâ strictiusculâ; aperturâ oblongâ; peristomate simplice, recto, margine dextro supernè arcuato, columellari dilatato, patente.*
Long. 19, diam. 9 mill.
Locality unknown.

32. Bulimus andicola, Pfr. *Bul. testâ perforatâ, turrito-conicâ, solidâ, lineis concentricis, confertis sub lente sculptâ, opacâ, nitidâ, albâ, strigis fuscis, linearibus irregulariter ornatâ; spirâ elongatâ, acutiusculâ; anfractibus 7 convexiusculis, ultimo $\frac{3}{7}$ longitudinis subæquante, basi rotundato; columellâ deorsum aliquantulum recedente; aperturâ ovali-oblongâ; peristomate simplice, acuto, margine columellari supernè fornicatim reflexo, perforationem angustam formante.*
Long. 24, diam. 11 mill.
From the Columbian Andes (Lindon).

33. Pupa elegantula, Pfr. *Pup. testâ breviter rimatâ, subcylindraceâ, apice obtuso, lævigato, nitido, hyalino; anfractibus 7 planiusculis, ultimo præcedente paulò angustiore, extus medio sulcato, intus lamellis 2 validis, suturæ parallelis, plicâque profundâ columellæ parallelâ munito; aperturâ subsemicirculari, lamellâ parietis aperturalis intrante juxta insertionem labri coarctatâ; peristomate expansiusculo, margine dextro flexuoso, medio subincrassato.*
Long. $6\frac{2}{3}$, diam. 3 mill.
Locality unknown.

34. Achatina Lamarckiana, Pfr. *Ach. testâ ovato-conicâ, solidâ, ponderosâ, ruditer plicatâ, in fundo albido strigis fulminatis nigricantibus et castaneis, maculisque rufis variegatâ; spirâ conicâ, pallidâ, apice obtusiusculo; anfractibus 8 convexiusculis, supremis lineis spiralibus obsoletè decussatis, ultimo ventroso, spiram superante; columellâ arcuatâ, purpureo-callosâ, supra basin aperturæ obliquè et leviter truncatâ; aperturâ ovali, intus margaritaceâ, cærulescente, saturatius marmoratâ; peristomate fusco-limbato, marginibus callo purpureo junctis.*
Long. 103, diam. 52 mill.
From the interior of the island of Madagascar.

35. Achatina Rangiana, Pfr. *Ach. testâ elongatâ, turritâ, solidâ, ponderosâ, lævissimè arcuatim substriatâ, lineis spiralibus distantibus notatâ, stramineâ, apice albo, obtusiusculo; suturâ lævissimâ; anfractibus 11 planulatis, ultimo $\frac{1}{4}$ longitudinis paulò superante, basi rotundato; columellâ rectâ, callosâ, ad basin aperturæ breviter et obliquè truncatâ; aperturâ subsemiovali, intus margaritaceâ; peristomate simplice, acuto.*

Long. 39, diam. 11 mill.
From Mexico (Lindon).

36. Achatina bulimoides, Pfr. *Ach. testâ ovato-conicâ, tenui, striatâ, epidermide corneo-luteâ, pellucidâ indutâ; spirâ conicâ, acutâ; anfractibus* 5½ *vix convexis, ultimo ventrosiore, spiram æquante; columellâ supernè tortâ, filari, supra basin aperturæ obsoletissimè truncatâ, callo tenui ventrem anfractûs penultimi vestiente munitâ; aperturâ latè semiovali; peristomate simplice, tenui.*
Long. 11, diam. 6 mill.
From the island of Juan Fernandez (H. Cuming).

37. Achatina (Glandina) Lindoni, Pfr. *Ach. testâ oblongâ, utrinque attenuatâ, soliduld, lævigatâ, nitidâ, pallidè fulvâ, lineis incrementi arcuatis, vix prominentibus, saturatioribus notatâ; spirâ conicâ, acutiusculâ; suturâ submarginatâ; anfractibus* 8 *planiusculis,* 2 *ultimis obliquè descendentibus, ultimo spiram æquante, supra columellam intus gibboso; columellâ brevi, ad basin aperturæ obliquè truncatâ; aperturâ angustissimâ, basi subcanaliculatâ; peristomate simplice, marginibus callo junctis, dextro antrorsum arcuato-dilatato.*
Long. 21, diam. 6 mill.
From the island of Cuba (Lindon).

38. Cylindrella Sowerbyana, Pfr. *Cyl. testâ truncatâ, cylindraceo-subulatâ, solidiusculâ, obliquè subarcuatim costulato-striatâ, opacâ, cinnamomeo et albo radiatâ; anfractibus (spec. trunc.)* 16 *angustis, convexiusculis, ultimo basi subcarinato (carinâ parum prominente, ferè rectangulâ), anticè vix protracto, subtilius striato; aperturâ subcirculari; peristomate undique libero, tenui, breviter expanso, margine supero sursum dilatato.*
Long. 35, diam. 8 mill.
From the island of Cuba (Lindon).

December 22, 1846.

R. C. Griffith, Esq., in the Chair.

The following descriptions of new species of *Chama*, by Lovell Reeve, were communicated by Hugh Cuming, Esq.

CHAMA FIMBRIATA. *Cham. testâ suborbiculari, valvis ambabus concentricè fimbriato-lamellatis, valvarum marginibus minutè crenulatis; lutescente-albâ.*

Hab. Point Cunningham, North Australia; Dring.

A very distinct species, though its characters are set forth in few words; the lamellæ are not isolated as in most of the genus, but arranged in concentric continuous wavy frills.

CHAMA PANAMENSIS. *Cham. testâ ovatâ, circiter trigonâ, lateraliter affixâ, valvâ superiore posticè lævi, tenuissimè appresso-laminatâ, anticè rugosâ, rudè fimbriatâ, inferiore lævi, per basim lamellatâ, valvarum marginibus lævibus; albidâ, ferrugineo-fusco hic illic tinctâ.*

Hab. Panama (attached to stones); Cuming.

The upper valve of this shell is distinguished in a peculiar manner by its twofold style of sculpture.

CHAMA PRÆTEXTA. *Cham. testâ ovatâ, valvis ambabus concentricè pulcherrimè fimbriatis, fimbriis tenuibus subpellucidis, grandibus, plus minusve erectis, valvarum marginibus lævibus; pallidè croceâ, fimbriis supra rufescentibus.*

Hab. ——?

This truly delicate and beautiful shell was received by Mr. Cuming from a continental naturalist of some celebrity as the *C. croceata* of Lamarck, but it does not answer to the description. There are several Lamarckian species of this genus, and even the Linnæan *C. gryphoides*, which it is quite impossible to identify with the least degree of certainty.

CHAMA EXIGUA. *Cham. testâ parvâ, tenui, subpellucidâ, circuiter trigonâ, lateraliter affixâ, valvâ superiore minutissimè appresso-laminatâ et radiatim striatâ, subasperâ, inferiore divaricatim excavato-punctatâ, per basim lamellatâ; albâ.*

Hab. Singapore (dredged from sandy mud at the depth of seven fathoms attached to fragments of shells); Cuming.

A little transparent white shell, of which Mr. Cuming collected several specimens; the lower valve is distinguished by a peculiarity of punctured sculpture somewhat analogous to that of the *C. arcinella*; there is no trace of it, however, in the upper valve, as in that species.

CHAMA FRAGUM. *Cham. testâ suborbiculari, valvâ superiore con-*

centricè tenuissimè fimbriato-laminatâ, laminis marginem versus subtubulosis, inferiore rudè tubuloso-squamatâ, valvarum marginibus minutè crenulatis; albâ, rufo-punctatâ, intus albidâ.

Hab. Island of Mindoro, Philippines (attached to coral); Cuming.

The sculpture of this species somewhat approaches that of the *C. spinosa*; it is of a more minute and delicate character and easily distinguished on comparison.

CHAMA VARIEGATA. *Cham. testâ oblongo-ovatâ, circiter trigonâ, valvâ superiore lamellatâ, præcipuè in seriebus duabus posticis, lamellis latiusculis appressis, interstitiis obliquè rugoso-liratis, squamis perpaucis brevibus remotis, valvarum marginibus lævibus; corallo-rubrâ, liris lamellis squamisque albis, intus albidâ, rufo-fusco tinctâ.*

Hab. Honduras; Dyson.

The colouring of this shell has a very pretty effect, the oblique ridges and other external sculpture being white upon a coral or orange-red ground.

CHAMA CISTULA. *Cham. testâ orbiculari, posticè profundè sinuatâ, valvis ambabus peculiariter rudè lamellatâ et squamatâ, squamis ad margines subproductis, appressis, valvarum marginibus lævibus; albidâ, roseo-fuscescente variâ, intus albâ.*

Hab. Honduras; Dyson.

The upper valve of this shell is rather more convex than usual; the sculpture peculiarly rudely developed.

CHAMA TUMULOSA. *Cham. testâ orbiculari, posticè subprofundè sinuatâ, valvis ambabus valdè convexis, rudè tumulosis et imbricatis, interstitiis posticè obliquè liratis, liris minutissimè squamatis, valvarum marginibus lævibus; aurantio rufoque variâ, liris posticis albis, intus albâ.*

Hab. Honduras (attached to coral); Dyson.

A striking species, though of rude growth; it is doubly sinuated on the posterior side, having round orange protuberances along the summit, whilst the channeled interstices have a striped appearance, from their being crossed by white ridges on a blood-red ground.

CHAMA LINGUA-FELIS. *Cham. testâ orbiculari, supra depressiusculâ, valvis ambabus præcipuè inferiore minutè retusè squamatis, superiore pulcherrimè fimbriato-laminatâ, laminis appressis, posticè concavo-planatâ, ad angulos elongato-lamellatis, valvarum marginibus lævibus; niveâ, rosaceo hic illic tinctâ.*

Hab. Island of Guimaras, Philippines (attached to stones); Cuming.

An extremely delicate and characteristic species, in which the upper valve is very finely laminated, whilst the ground sculpture of both that and the lower valves is of a curious roughened character, somewhat similar to the *Tellinæ scobinata* and *lingua-felis*.

CHAMA PELLIS-PHOCÆ. *Cham. testâ suborbiculari, valvâ superiore undique minutissimè squamatâ, squamis umbonem versus brevissimè*

retusis, marginem versus longioribus subspiniferis, inferiore rudè lamellatâ, valvarum marginibus lævibus; albâ, squamis marginem versus rufo-fuscis, umbone roseo.

Hab. Island of Ticao, Philippines (attached to stones); Cuming.

The pink stain upon the umbone is probably a character which may help to distinguish this species.

CHAMA APPRESSA. *Cham. testâ orbiculari, valvis ambabus concentricè laminatis, laminis tenuibus plano-appressis, inferiore posticè liris perpaucis minutis obliquè exsculptâ, valvarum marginibus lævibus; albâ, roseo-fuscescente sparsim tinctâ.*

Hab. Honduras; Dyson.

Distinguished by its concentric flatly appressed laminæ.

CHAMA RUPPELLII. *Cham. testâ suborbiculari, valvâ inferiori valdè productâ, crassiusculâ, lævigatâ, plus minusve erosâ; albidâ, valvarum marginibus internis vividè rufo-purpureis.*

Hab. Red Sea.

Approximating closely to the *C. iostoma*, but from so remote a locality that I venture to distinguish it as a new species.

CHAMA BRASSICA. *Cham. testâ suborbiculari-ovatâ, circiter trigonâ, valvis ambabus rugosis, profusè squamatis, squamis valvæ superioris subfoliaceis, inferioris brevibus, erectis; albidâ, squamis roseis.*

Hab. Island of Cabul, Philippines (under stones at low water); Cuming.

An interesting species, curiously scaled, and of peculiarly circuitous growth.

CHAMA CARDITÆFORMIS. *Cham. testâ transversim oblongâ, valvis ambabus radiatim minutissimè squamæ liratis, squamis appressis, posticis majoribus, valvarum marginibus crenulatis; albâ, lirarum interstitiis posticè coccineo-rufis.*

Hab. ——?

Easily distinguished by its peculiar oblong growth, which apparently is not accidental.

CHAMA VENOSA. *Cham. testâ circuiter trigonâ, lateraliter affixâ, valvis ambabus lævibus, radiatim subobsoletè tricostatâ, costis asperè nodulosis; albâ, lineis purpureo-roseis obliquis undique venosâ, intus albâ.*

Hab. ——? (Attached to shells.)

The blood-red lines with which the entire surface of this shell is painted are not less characteristic than the three faint sharply-noduled ribs.

CHAMA JANUS. *Cham. testâ circiter trigonâ, valvâ inferiore et dimidio postici superioris lævibus vel obliquè obtusè liratis, squamarum brevium seriebus duabus radiantibus, valvâ superiore undique irregulariter appresso-squamatâ, valvarum marginibus lævibus; purpureo-rufâ, liris obliquis squamisque albis.*

Hab. Gallapagos Islands (attached to the large *Aviculæ*); Cuming.

The general aspect of this shell is not much unlike that of *C. venosa*, but the difference may be easily detected on examination; instead of being veined with fine lines of colour upon a white ground, the oblique ridges are raised upon a red ground; besides this, the upper valve is characterized by a double style of both colour and sculpture, the anterior half being of a dull brick-red colour and appressly scaled, whilst the posterior half is similar to the under valve. Mr. Broderip has figured this shell as the young *C. imbricata*, but it is far removed from that species.

CHAMA RUBEA. *Cham. testâ ovatâ, circiter trigonâ, valvis ambabus rudè flexuosis et appresso-laminatis, squamis perpaucis, valvarum marginibus subtilissimè crenulatis, purpureo-rubrâ, squamis albidis, intus albâ, margine purpureâ.*

Hab. Cagayan, island of Mindanao, Philippines (attached to stones); Cuming.

The under valve of the specimen here represented is more squamate, and the scales are more erect than the upper.

CHAMA JUKESII. *Cham. testâ ovatâ, valvis ambabus profusè et confertissimè brevispinosis, spinis valvæ inferioris subsquamatis; intus extusque niveâ, umbonibus apice pallidè purpureis.*

Hab. Cape Upstart, North Australia (on the coral reefs at low water); Jukes.

I dedicate this shell with a great deal of pleasure to Mr. Jukes, the zealous naturalist of H.M.S. The Fly, to whom this monograph is indebted through Mr. Cuming for several interesting species.

CHAMA SARDA. *Cham. testâ suborbiculari, valvis ambabus peculiariter exiliter obliquè striatis, squamis brevibus asperis remotis; intus extusque vividè corallo-rubrâ.*

Hab. Honduras (attached to coral); Dyson.

Rich in colour and very characteristic in sculpture, being crossed in an oblique direction throughout with faint striæ, and roughened here and there with short scales, like the asperities of a coarse file.

The following paper, by Dr. J. H. Jonas, containing descriptions of two new Shells, was also communicated by Hugh Cuming, Esq.

PYRULA IDOLEUM, Jonas. *Pyr. testâ oblongo-fusiformi, biconicâ, umbilicatâ, testaceo-albâ, transversim regulariter liratâ, sulcis interjectis angustis, liris sub lente squamosis; anfractibus sex per longitudinem leviter plicatis, medio acutè angulatis; angulo costâ undulatâ munito; costâ squamis imbricatis oculo nudo vix conspicuis distinctâ; caudâ spirâ breviore, recurvâ et squamis armatâ; aperturâ pyriformi, intus striatâ, columellâ lævi, nitidiusculâ, cylindraceâ, canali recurvo, aperto.*

Long. $17\frac{1}{2}$, lat. $9\frac{3}{4}$ lin.

Patria?

(Exstat in museo Gruner.)

The form of this shell differs so much from all those known to me, that I find it impossible to compare it with any of them; its

only resemblance is to a product of art—to the roof of a Chinese pagoda, and for this similarity's sake I have named it *Pyrula idoleum.* Starting from the supposition that in former times men took the productions of nature which surrounded them as models for their works of art, the peculiar form of this shell has suggested to me the conjecture that it originates from China; in all probability we shall yet obtain from this country many strange forms, as for example the *Pyrula Maweæ,* which is brought from the Chinese Sea.

ANOMIA NAVIFORMIS, Jonas. *An. testâ transversim elongatâ, angustâ, tenui, pellucidâ, marginibus dorsali et ventrali parallelis, rectis, lateralibus brevibus, rotundatis; valvâ majore æneâ, valdè concavâ, minore albâ, fragilissimâ, concaviusculâ; foramine ovato, integro.*

Long. 16, lat. 4 lin.

Patriam ignoro.

This Anomia may perhaps be an aberrant form of the *A. ænigmatica,* with which it has great resemblance in the texture of the shell, position of the umbones and form of the foramen; but I do not dare to assert this, and therefore I describe it as a peculiar species till intermediate species are found, forming the links of a chain, of which the above two are the terminating ones.

Mr. Tomes exhibited to the Meeting a specimen of the Bimaculated Duck, *Anas glocitans,* which he had obtained in Leadenhall-market; the specimen is a female, and agrees in size and plumage with that in the Society's collection.

INDEX.

The names of New Species, and of Species newly characterized, are printed in Roman Characters: those of Species previously known, in *Italics*: those of Species respecting which Anatomical Observations are made, in CAPITALS.

END OF PART XIV.

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