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PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY

OF LONDON.

PART II.

1834.



PRINTED FOR THE SOCIETY,
BY RICHARD TAYLOR,
RED LION COURT, FLEET STREET.

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OF

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PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY OF LONDON.

January 14, 1834.

Joseph Sabine, Esq., Vice-President, in the Chair.

Several *crania* were exhibited of the *Lion* and of the *Tiger*, forming part of the Society's Museum, on which Mr. Owen explained the distinguishing characteristics of that part of the osseous system of these two large species of *Felis*. He adverted in the first instance to those pointed out by Cuvier in the 'Ossemens Fossiles', and remarked on the first of them,—the straightness of the outline in the *Lion* from the mid-space of the postorbital processes to the end of the nasal bones, in one direction, and to the *occiput* in the other,—as not being in all cases available: the second distinction,—the flattening of the interorbital space in the *Lion* and its convexity in the *Tiger*,—he regarded as being more constant and appreciable than the one just mentioned. There is, however, a distinction which he believes has never been published, which is well marked, and which appears to be constant; for it is found to prevail throughout the whole of the skulls of these animals which he has had opportunities of examining, including ten of the *Lion*, and upwards of twenty of the *Tiger*. It consists in the prolongation backwards, in the *cranium* of the *Lion*, of the nasal processes of the maxillary bones to the same transverse line which is attained by the coronal or superior ends of the nasal bones: in the *Tiger* the nasal processes of the maxillary bones never extend nearer to the transverse plane attained by the nasal bones than $\frac{1}{4}$ rd of an inch, and sometimes fall short of it by $\frac{2}{3}$ rds, terminating also broadly in a straight or angular outline, just as though the rounded and somewhat pointed ends which these processes have in the *Lion* had been cut off.

Minor differences, Mr. Owen remarked, exist in the form of the nasal aperture, which in the *Tiger* is disposed to narrow downwards, and become somewhat triangular, while in the *Lion* its

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tendency is towards a square shape; in the deeper sinking, in a longitudinal depression, of the coronal extremities of the nasal bones in the *Tiger* than in the *Lion*; in the bounding of this depression above in most of the *Tigers' crania* by a small but distinct semilunar ridge, which is not found in those of the *Lion*; and in the larger comparative size, chiefly in their transverse diameter, of the infraorbital *foramina* in the *Lion*. These *foramina*, it is curious to observe, are double either on one or both sides in the only four *crania* examined of *Lions* which were known to be Asiatic, while in all the others the *foramen* was single on each side.

Specimens were exhibited of *Placunanomia* from the collection of Mr. Cuming, and the following Notes by Mr. Broderip respecting them were read.

Genus PLACUNANOMIA.

Since my publication of this genus in the 'Proceedings of the Committee of Science and Correspondence,' (Part II. p. 28.) Mr. Cuming has found among his stores the following three species in addition to *Plac. Cumingii*, which I have already recorded.

PLACUNANOMIA RUDIS. *Plac. testâ sordidè albâ, crassâ, concentricè irregulariter corrugatâ, intùs nitidè politâ: alt. $1\frac{7}{8}$, long. $1\frac{1}{2}$, lat. $\frac{5}{8}$ poll.*

Hab. in Indiâ Occidentali.

OBS. *Ostreae edulis speciem referens.*

Mr. Cuming detected this *Placunanomia* attached to a *Spondylus croceus*.—W. J. B.

13 M PLACUNANOMIA FOLIATA. *Plac. testâ subdiaphand, subcirculâri, rudî, subfoliatâ, sordidè albâ, intùs splendente; valvæ superioris medio purpureo-fusco: alt. $1\frac{1}{2}$, long. $1\frac{1}{2}$, lat. $1\frac{1}{4}$ poll.*

Hab. in sinu Guayaquil Columbiae Occidentalis. (Isle of Murte.)

Dredged up attached to a dead *Pinna* from a bottom of sandy mud, at the depth of eleven fathoms.

The surface of the inside of the lower valve is uneven but lustrous, and of a hue somewhat approaching to golden. The inside centre of the upper valve is of a rich purple brown. The outer surface of the lower valve, which has been attached throughout its whole extent, bears a somewhat crystalline appearance; and this observation may be applied to the adhering surface of *Plac. rudis*. In the last-mentioned species this portion is comparatively small, and the eye will immediately detect it from the contrast which it affords with the dull exterior of the part which was free.—W. J. B.

PLACUNANOMIA ECHINATA. *Plac. testâ subtumidâ, valvâ superiore seriatim echinatâ, limbo purpurascente: alt. $1\frac{1}{2}$, long. $1\frac{1}{2}$, lat. $\frac{3}{4}$ poll.*

Hab. ad Insulam Nevis.

Dredged up attached to shells, by Mr. Powers, from sandy mud at a depth of six fathoms.

The inside of the upper valve is of a shining colour, approaching to golden, and that of the lower is sometimes silvery and sometimes of a lighter shade of the colour of the inside of the upper valve.

This species varies much in shape, according to circumstances. Mr. G. B. Sowerby possesses one of an irregular ovate form. Indeed *Placunanomia*, in common with other adherent genera, varies much in shape, accommodating its external form to the surface to which its lower valve is attached. It is remarkable also for putting on the appearance of other genera or species; and this, with the extreme closeness of the adhesion of the lower valve, has been perhaps one of the causes why it has escaped the notice of zoologists. Thus, *Plac. Cumingii*, to a casual observer, looks like one of the plicated *Oysters*; *Plac. rudis* greatly resembles the common *Oyster*, *Ostrea edulis*; and *Plac. echinata* wears something of the appearance of some of the short-spined *Spondyli*.—W. J. B.

Besides the species above recorded Mr. G. B. Sowerby has kindly furnished me with an odd valve of a large species from Luçon, beautifully iridescent internally: but as it is believed that this is identical with the fine shell sold by him to the British Museum, I leave the description of it to the officers of that institution, in whose province it is, and who are so fully capable of doing it justice.

This genus, then, appears to be widely diffused. Mr. G. B. Sowerby has some other odd valves which may prove new. I possess two or three specimens adhering to *Spondyli* from an unknown locality; but they appear to be young, and, though I am inclined to think that there is among them a new species, I wait for further information before I venture to characterize it.—W. J. B.

Mr. Owen read the following Notes on the Anatomy of the purple-crested *Touraco*, *Corythaix porphyreolopha*, Vig.

“In commencing the anatomical examination of this *Bird*, my attention was first directed to the form of the tongue. This was large, and not confined to the posterior region of the mouth, but extended to the end of the lower mandible: its apex was beset with a few small horny bristles directed forwards, as in the *Toucans*, *Rhamphastos*, Linn., but much less produced than in those birds. It is probable that the ripeness of fruit on which these birds feed is tested by these yielding processes. The base of the tongue was, as usual, beset with retroverted papillæ, and elevated into a distinct ridge, serving, as in many of the cold-blooded *ovipara*, as an *epiglottis*. The interspace between this ridge and the laryngeal aperture was very glandular. That aperture was simple and terminated posteriorly by two retroverted spines; so that it is defended in some degree against regurgitated food as well as from that which is swallowed.

“The *œsophagus* is continued down to the stomach of uniform ample width (its diameter being $\frac{3}{4}$ rds of an inch) without any dilatation or *ingluvies*, as in the true *Rasorial* birds. Its termination for about $\frac{1}{4}$ ths of an inch is occupied by the zone of gastric glands, forming the *proventriculus*, which does not deviate in capacity or course from

the rest of the gullet. The gastric follicles are simple, elongated and rather flattened. The gizzard is small and weak in its *parietes*, resembling that of the *Toucan*. Its length is 1 inch 4 lines; its greatest diameter 10 lines. The lateral tendons are distinct, and the narrower portion beyond the *pylorus* has the strongest muscular coat, which, however, does not exceed at this part $\frac{1}{3}$ rd of a line in thickness.

“The capacity of a gizzard of this structure is obviously one reason why a crop or reservoir is not required: where the muscular *parietes* encroach upon the digestive cavity, so as only to allow small portions of food to enter at a time for the purpose of undergoing trituration, then a crop is as necessary to the gizzard as the hopper to a mill. It is also required in some of the most carnivorous birds to enable them to glut themselves with portions of their prey when too bulky to be borne away entire, and thus to carry off more than the true digestive cavity can contain. But in birds which, like the *Toucans*, the *Hornbills*, the *Parrots*, and the *Touracos*, live amidst abundance of nutriment, and that of easy digestion, a superadded cavity to act as a reservoir, or to submit the food to maceration previous to its entering upon the digestive process, appears unnecessary.

“The intestinal canal in the *Touraco* has a similar affinity to that of the tribes of *Birds* above mentioned, being short, ample and without *cæca*. It measured twice the length of the bird from the end of the bill to the vent. A small pyloric canal intervenes between the gizzard and *duodenum*, and opens into the latter upon a valvular prominence. The *duodenum* suddenly dilates, and has a diameter of half an inch; but I am doubtful whether this is natural, as it was, in the present instance, distended with *Tæniæ*, which had perforated it in some places, and probably caused the death of the bird. The fold of the *duodenum* is 3 inches long, including a narrow bilobed *pancreas*. The intestine gradually diminishes in diameter to within 5 inches of the *cloaca*, when it suddenly dilates, and this portion has the usual disposition and course of the *rectum* in birds.

“The liver was composed, as usual, of two lobes. There was a gall-bladder, of an elongated form, with the cystic duct continued from the end furthest from the intestine. The mode of termination of the biliary and pancreatic ducts I was unable to determine, owing to the morbid adhesions caused by the irritation of the *Tæniæ*.

“The *testes* were small. The kidneys and supra-renal glands were of the usual structure.

“From the affinity pointed out by Cuvier between the *Touraco* and the *Curassows*, I examined carefully the structure of the *trachea*, so remarkable for its convolutions in the latter family of birds. It was, however, continued straight to the inferior *larynx*, and was connected to the *furculum* only by a slight *aponeurosis*: the sterno-tracheal muscles, a single pair, were strong in proportion to the size of the bird. The rings of the *trachea* were of a flattened form, gradually diminishing in size towards the lower extremity of the tube. The lungs were of the usual form and structure, and the

air-cells apparently not extending along the neck, or beyond the abdominal cavity, except to penetrate the osseous system; but of this I cannot speak with safety, as the bird was skinned before I dissected it.

“The eye of the *Touraco* is large, measuring 7 lines in lateral diameter. The *lens* is very convex posteriorly, and its capsule is attached to a narrow *marsupium*.

“The clavicles were united, forming an *os furcatorium*; but they were extremely weak, and yielded with facility at the point of union. The keel of the *sternum* was of moderate size, its greatest depth being to the length of the *sternum* as 1 to 4. The posterior margin of the *sternum* has two notches on either side of the keel, as in the *Toucan*; the lateral ones extending along two thirds the length of the *sternum*, the mesial ones about one third.

“After this detail it is scarcely necessary to observe that in all the important points of the internal structure the *Touraco* manifests close relationship to the *Scansorial* order, and a marked deviation from the typical structure of the *Rasores*, in which the superadded lateral dilatations of the alimentary tube, the crop and *cæca*, are so largely developed.

“The same affinity is also shown in the nature of its parasitic worms,—the *Tænicæ* belonging to the species *filiformis* of Rudolphi, so remarkable for the length and tenuity of the body, and which has hitherto been met with only in the *Psittacidæ*.

“I had an opportunity in this instance of witnessing very satisfactorily the mode of generation of the *Tænia*. Many separate joints were found in the track of the intestines, which, when viewed under the lens, were seen full of *ova*. Each of these joints contained from thirty to thirty-three *ova*, of a subglobular form, and a surface rendered irregular by minute asperities. The posterior joints of the unbroken worms were similarly distended, and readily separated.

“This division of the body approximates to the fissiparous mode of generation; but as the joints are merely the capsules of the *ova*, it is more strictly analogous to the mode of generation in the *Lernææ* and *Entomostraca*.”

January 28, 1834.

William Yarrell, Esq., in the Chair.

A preparation was exhibited of the stomach of *Semnopithecus Maurus*, F. Cuv., presented to the Society by G. H. Garnett, Esq. It was brought under the notice of the Meeting for the purpose of showing that there exists in that *Monkey* the extremely elongated and sacculated form of the *viscus*, which was first described by M. Otto, as occurring in *Semn. leucopymnus*, and which was subsequently exhibited by Mr. Owen, at the Meeting of June 11, 1833, (Proceedings, Part. I. p. 74.) as obtaining also in the only two species of the genus which he had then examined, the *Semn. Entellus*, F. Cuv., and the *Semn. fascicularis*, Raffl.,—a structure which he afterwards described and figured in the 'Transactions' (vol. i. p. 65, pll. 9 and 10). Mr. Owen's impression that this remarkable modification of the stomach is a generic peculiarity, receives confirmation from its occurrence in the first previously unexamined species which has been dissected within the Society's reach since the publication of his remarks.

An extensive series of *Eulimæ*, chiefly from the collection of Mr. Cuming, was exhibited, and the following account by Mr. G. B. Sowerby of the genus and of the characters of the several species was read.

Genus EULIMA, Risso.

Testa turrita, acuminata, polita, anfractibus plurimis; aperturâ ovatâ, posticè acuminatâ; labio externo subincrassato, varices obsoletos frequentes, subsequendos, plerumque efformante: operculo corneo, tenui, nucleo antico.

This genus of marine *Shells* appears to be most nearly related to *Pyramidella* and *Rissoa*. A species which has been long known has had the appellation of *Turbo politus* among British Linnean writers; and a fossil species has been placed by Lamarck among the *Bulini*, under the specific name of *Bul. terebellatus*. There are two distinctly marked divisions of the genus, which are characterized by the two species above mentioned; one has a solid *columella*, and the other is deeply umbilicated. All the species are remarkable for a brilliant polish externally, and the shells are frequently slightly and somewhat irregularly twisted, apparently in consequence of the very obsolete *varices* following each other in an irregular line, principally on one side, from the *apex* toward the aperture. Several recent species are British, and the fossil species are found in the *calcaire grossier* near Paris.

* Perforatæ.

EULIMA SPLENDIDULA. *Eul. testâ acuminato-pyramidalî, brunnescente, prope suturas albo castaneoque articulatâ; umbilico magno; aperturâ anticè angulatâ: long. 1.45, lat. 0.6 poll.*

Conch. Illustr., f. 7.

Hab. ad Sanctam Elenam Americæ Meridionalis.

A single specimen of this brilliant shell was dredged in sandy mud at from six to eight fathoms' depth.—G. B. S.

EULIMA MARMORATA. *Eul. testá acuminato-pyramidalí, albido brunneoque marmoratá; anfractibus paululùm rotundatis; umbilico magno, patulo; aperturá anticè angulatá: long. 0·85, lat. 0·4 poll.*

Conch. Illustr., f. 8.

Hab.

A single specimen was in the collection of the late G. Humphrey.—G. B. S.

EULIMA INTERRUPTA. *Eul. testá acuminato-pyramidalí, albicante, ad varices brunneo maculatá; umbilico mediocri; aperturá anticè angulatá: long. 0·7, lat. 0·25 poll.*

Conch. Illustr., f. 11.

Hab. in Americâ Centrali.

Dredged in coarse sand, at from eleven to thirteen fathoms, in the Gulf of Nocoíyo.—G. B. S.

EULIMA IMBRICATA. *Eul. testá acuminato-pyramidalí, albidá, longitudinaliter spadiceo lineatá; anfractibus infrâ angulatis, prominentibus; umbilico parvo; aperturá anticè angulatá: long. 0·8, lat. 0·25 poll.*

Conch. Illustr., f. 4.

Hab. ad Sanctam Elenam Americæ Meridionalis.

Dredged in sandy mud in from six to eight fathoms.—G. B. S.

EULIMA BRUNNEA. *Eul. testá acuminato-pyramidalí, brunneá; anfractibus rotundatis; umbilico parvo; aperturá anticè rotundatá: long. 0·6, lat. 0·2 poll.*

Conch. Illustr., f. 9.

Hab. ad Insulam Haynan dictam, in mare Sinensi.

Several specimens were in the late G. Humphrey's collection.—G. B. S.

**** Imperforatæ.**

EULIMA BREVIS. *Eul. testá brevi, acuminatá, hyaliná; varicibus subsecundis; aperturá anticè rotundatá: long. 0·4, lat. 0·15 poll.*

Conch. Illustr., f. 15.

Hab. ad Insulas Oceani Pacifici.

Found on the *Mother-of-pearl Shells* at Lord Hood's Island.—G. B. S.

EULIMA HASTATA. *Eul. testá breviusculá, albá, prope apicem testacedá; aperturá ovatá, margine laterali anticâque subangulatis: long. 0·7, lat. 0·2, poll.*

Conch. Illustr., f. 10.

Hab. ad Sanctam Elenam.—G. B. S.

EULIMA MAJOR. *Eul. testá acuminato-pyramidalí, opacá, lacteá; labio externo subarcuato: long. 1·6, lat. 0·4 poll.*

Conch. Illustr., ff. 1. 1*. 1**.

Hab. ad Insulam Tahiti.

The largest specimen was found in coral sand on the reefs.—G. B. S.

EULIMA LABIOSA. *Eul. testá acuminato-pyramidalí, latiusculá;*

anfractibus subrotundatis; apertura brevi, labio externo posticè dilatato: long. 0·7, lat. 0·3 poll.

Conch. Illustr., f. 2.

Hab. ad Insulam Annaa Oceani Pacifici.

Found in fine coral sand.—G. B. S.

EULIMA ANGLICA.

Turbo politus, Mont., Test. Brit. Conch. Illustr., f. 5.

EULIMA SUBANGULATA. *Eul. testá acuminato-pyramidali, tenui, opacá, albá; anfractu ultimo anticè subangulato: long. 0·7, lat. 0·2 poll.*

Conch. Illustr., f. 3.

Hab. ad littora maris Indici.

A few specimens were among the late G. Humphrey's stores, labelled E. I.—G. B. S.

EULIMA PUSILLA. *Eul. testá acuminato-pyramidali, tenui, hyalina, albá; anfractibus longiusculis: long. 0·3, lat. 0·05, poll.*

Conch. Illustr., f. 6.

Hab. ad Sanctam Elenam Americæ Meridionalis.

Variat omnino fusca.—G. B. S.

EULIMA ARTICULATA. *Eul. testá acuminato-pyramidali, albá, fusco articulata et marmorata; anfractibus subrotundatis; varicibus subprominulis; labio externo crassiusculo: long. 0·9, lat. 0·25 poll.*

Conch. Illustr., f. 12.

Hab. ad littora Australiæ.

This species is remarkable for the dark coloration immediately anterior to each *varix*.—G. B. S.

EULIMA VARIANS. *Eul. testá subfusiformi, acuminata, tenui, coloribus variá; apertura oblonga: long. 0·5, lat. 0·15 poll.*

Conch. Illustr., f. 14.

Hab. ad Xipixapi Americæ Meridionalis.

Two specimens were collected in sandy mud by Mr. Cuming, one of which is white, the other dark brown: several others were among G. Humphrey's stores, some of which are white, others are marked with brown lines and mottled.—G. B. S.

EULIMA LINEATA. *Eul. testá fusiformi, tenui, albá, lineis fuscis duabus spiralibus; apertura oblonga: long. 0·7, lat. 0·1 poll.*

Conch. Illustr., f. 13.

Hab.

Several specimens of this were in G. Humphrey's collection, marked "Spira lineata, Weymouth, M.P.": these two last letters stand for *Musæi Porlandici*. I make no further remark, save that it appears to have been published by Da Costa under the name of *Turbo glaber*.—G. B. S.

EULIMA ACUTA. *Eul. testá turrito-acuta, albá; anfractibus duodecim lævibus, suturis obsoletis; varicibus sparsis: long. 0·4, lat. 0·05 poll.*

Hab. in Americâ Centrali. (Bay of Montiji.)

Found in coarse sand at a depth of thirteen fathoms.—G. B. S.

February 11, 1834.

Joseph Sabine, Esq., Vice-President, in the Chair.

Extracts were read from a letter addressed to the Secretary by B. H. Hodgson, Esq., Corr. Memb. Z.S., and dated Nepâl, July 13, 1833. It conveyed the thanks of the writer for the present to him on the part of the Society of an illustrative series of skins of *Birds*; and, referring to the mortality among the living *Birds* and *Quadrupeds* forwarded by him for the Society's Menagerie, it expressed a hope that a subsequent attempt would be more successful.

Portions were exhibited of the *viscera* of a *Capybara*, *Hydrochærus Capybara*, Erxl., taken from an individual which recently died in the Society's Menagerie. They consisted of the stomach, the enormous *cacum*, and the *fauces*. In calling the attention of the Meeting to the latter parts, Mr. Owen availed himself of the opportunity to demonstrate the structure first observed in them by Mr. Morgan, by whom it has been described and figured in the lately published Part of the 'Linnean Transactions'. The constriction of the hinder part of the soft palate, which prevents any but minutely divided substances from passing into the *pharynx*, and which was first observed in the *Capybara*, is found in many other *Rodents*, but does not obtain in the whole of the animals of that order.

Various preparations were exhibited of the *Rhea*, *Rhea Americana*, Vieill., and of the *Cassowary*, *Casuarus Emeu*, Lath. They were brought under the notice of the Society by Mr. Martin, who, at the request of the Chairman, read his notes of the dissections of these birds. They agreed generally with the descriptions published by Sir Everard Home in the 'Philosophical Transactions.'

Mr. Martin also exhibited a preparation of aneurism of the *aorta*, obtained from a *brown Coati*, *Nasua fusca*, F. Cuv., sent to the Society for *post mortem* examination by J. H. Lance, Esq. He stated that this disease appeared to be rare among *Quadrupeds*, no previous instance of it having occurred to him among more than a hundred individuals of various orders which he had dissected within the last few years.

A preparation was exhibited of a young *common Macaque Monkey*, *Macacus cynomolgus*, LaCép., which was born at the Gardens on the morning of the 25th January, but was dead when first noticed by the keeper. It is the first instance that has occurred in the Society's Menagerie of the birth of any *Monkey* of the Old Continent.

The reading was concluded of a Paper entitled "A few Remarks No. XIV. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

tending to illustrate the Natural History of two Annulose Genera, namely *Urania* of Fabricius and *Mygale* of Walckenaër: by W. S. MacLeay, Esq."

Adverting in the first place to the doubts which prevail among entomologists as to the true situation in nature of the genus *Urania*, Mr. MacLeay proceeds to contribute towards the elucidation of the problem, the history of one species which appears to him to be possibly new. He characterizes it as

URANIA FERNANDINÆ. *Ur. alis nigris, anticis utrinque lineis transversis auro-viridibus suprâ undecim, septimâ bifidâ, subtus sex humeralibus latis, septimâ bifidâ, octavâ longissimâ trifidâ, reliquis apicalibus filiformibus; posticis suprâ fasciâ haud serratâ et lineis octo brevibus lateralibus transversis auro-viridibus.*

Exp. alarum 4—4 $\frac{1}{2}$ unc.

Hab. in Cubâ.

Mr. MacLeay describes in great detail the perfect insect, and points out, as far as printed descriptions and figures exhibit them, (he having at present no access to cabinets,) the marks which distinguish *Ur. Sloanus*, Godart, and *Ur. Boisduvalii*, Guér., from the Cuban species. He conceives, however, from the many variations that he discovers in it, that this insect may be merely a variety of *Ur. Sloanus*, to which species *Ur. Boisduvalii* may also possibly be referred as a small variety.

The coast of Cuba, in every open sandy part of it, is girt immediately above the coral reefs by a copse belt, close and nearly impenetrable, composed of almost one species of tree, the *sea-side Grape*, *Coccoloba uvifera*, Linn. At the base of this belt grow various *Euphorbiaceæ* and *Convolvuli*; and behind it the parched sand supports many sea-side shrubs, including *Palms*, *Cæsalpinia*, *Cacti*, &c., festooned with the flowers of *Convolvuli*, *Echites*, and other climbing plants: the leaves are studded with small terrestrial shells, and large sea-shells, brought from their original element by the singular *Paguri* which have usurped them, cluster round the short stunted trunks.

Among the shrubs of these sands the most interesting is *Omphalea triandra*, the *cob* or *hog-nut* of Jamaica, a *Euphorbiaceous* plant, but affording a most delicious and wholesome kernel: its upper leaves are large, heart-shaped, and thick, having a leathery texture and scabrous pale green surface; the young leaves and those of young plants have the same texture and colour, but differ remarkably in form, being deeply incised, with their divisions long and narrow, particularly the middle one, and all more or less denotated on the sides. On the upper side of the entire leaves of this shrub torpidly reposes during the day, under a transparent web which protects it from the powerful rays of the sun, a caterpillar, which at night becomes active and greedily strips the *Omphalea* of its foliage: this is the *larva* of *Ur. Fernandinæ*.

The egg of this insect may be found, throughout the whole of the spring, glued to the tender incised leaves of the *Omphalea*, scarcely ever more than two being attached to a single leaf: it has a pearly

lustre and a pale green colour, sometimes turning to yellow; and varies in shape from an ovate to an oblate spheroid. A circular space on its summit is smooth, and from hence proceed about twenty-four longitudinal ribs, the intervals between which are crossed by obsolete *striæ*.

The young *larva* is of the same colour with the egg, is marked by seven longitudinal black lines of hairs, and has a dirty yellowish head. When fully grown it is cylindrical, is without hinder protuberance on the penultimate segment, and has the more usual sixteen feet: it rarely rolls itself into a ring. Its head is sessile and red, with usually nearly twenty black spots, several of which seem to be tolerably constant; the mandibles are black. The *prothorax* is velvety black, with a white dorsal line and two or three white irregular spots at the sides; but the proportion of white varies, and there is sometimes a slight red spot on the back of the segment. The body varies from pale yellowish green to a flesh colour, with five paler longitudinal lines, of which the middle one is dorsal: the false feet are somewhat paler than the body; the true feet are red. The mesothoracic segment is rarely spotted, but all the others are often marked more or less with black spots. The spiracles are usually black. Each segment is furnished with about six hairs, which are white, and nearly one fifth as long as the whole body.

The *pupa* is not at all angular, but is rather gaily coloured; it is of a yellowish brown, with the *thorax* paler and the wings darker. The head is rounded and is marked, as well as the *mesothorax*, with several black spots; on the latter these are interspersed with points: the abdominal segments are each marked transversely with numerous black linear dots. The position of the *pupa* is horizontal, in an oval cocoon composed of a loose dirty-yellow silk, (with meshes so few and so lax as to allow the inmate to be readily seen,) and spun about withered or dead leaves.

The perfect insect is truly diurnal, swift in its flight, mounting high in the air, and travelling inland for two or three leagues, where it haunts gardens in great numbers. By far the greater number, however, remain on the sea-shore, sporting about the leaves of the *Coccoloba uvifera*, unless when depositing their eggs on the *Omphalea*. Its habit of frequenting the *Coccoloba* induced Mr. MacLeay to search long in vain for its *larva* on that tree. When it alights, all the four wings are expanded horizontally, and rarely, if ever, take a vertical position.

Mr. MacLeay concludes this portion of his paper by referring to Madame Merian's description of the metamorphosis of *Ur. Leilus*, and to her figure of its *larva*; both of which he regards as unworthy of credit. He then passes to her account of a *bird-catching Spider*.

The story of a *Spider* which catches and devours birds had, Mr. MacLeay believes, its origin with Madame Merian. Oviedo, Labat, and Rochefort make no mention of any *Spider* as possessing such habits, the two latter writers going no further than the statement that in the Bermudas there exists one which makes nets of so strong a construction as to entangle small birds. Madame Merian, however,

went the length of asserting that one *Spider* not only caught, but devoured small birds; and figured the *Mygale avicularia*, Walcken., in the act of preying on a *Humming-bird*. Now the *Mygale* does not spin a net, but resides in tubes under ground, and in all its movements keeps close to the earth; while *Humming-birds* never perch except on branches. The food of *Mygale* consists of *Juli*, *Porcelliones*, subterranean *Achetæ*, and *Blattæ*: a living *Humming-bird* and a small *Anolis*, placed in one of its tubes, were not only not eaten by the *Spider*, but the latter actually quitted its hole, which it left in possession of the intruders. The largest *Spider* of the West Indies that spins a geometrical web is the *Nephila clavipes*, Leach; and its net may perhaps, occasionally, be strong enough to arrest the smaller among the *Humming-birds*: but it is not likely that the *Spider* would eat the birds. A small species of *Sphæriodactylus*, Cuv., introduced into one of these nets, was enveloped in the usual manner by the *Spider*; but as soon as the operation was completed, the *Spider* lost no time in cutting the line and allowing her prisoner to fall to the ground. Mr. MacLeay consequently disbelieves the existence of any *bird-catching Spider*.

The Paper was accompanied throughout by numerous notes, including observations on many subjects adverted to by the author; such as the habits of the *land-Crabs* of Cuba; a description of the *grey Lizard* of the coast, apparently a species of *Agama*; &c. They also included an account of two species of *Sphæriodactylus*, Cuv., which are characterized as follows:

SPHÆRIODACTYLUS CINEREUS. *Sphær. caudæ corporis longitudine; totus cinereus, translucidus, capite flaviori, apice roseo; squamis dorsalibus punctis minutissimis nigris aspersis.*

Long. tot. $2\frac{3}{4}$ unc.

This may possibly be the *small house Lizard* of Browne's Jamaica.

SPHÆRIODACTYLUS ELEGANS. *Sphær. fasciis dorsalibus transversis nigris 14; capite cœruleo-cinereo, subtus nigro-fasciato; dorso subviridi; caudæ rubræ, corpore brevioris; ventre cinereo.*

Long. tot. $1\frac{1}{2}$ unc.

Both these *Lizards* are very common in houses in Cuba, occurring among books or wherever they can find shelter. They have bright eyes, are pretty and very harmless, and come out of their corners in rainy weather, declaring war against everything in the shape of a fly or musquitoe.

The Paper was also accompanied by drawings of the egg, *larva*, and *pupa* of *Urania Fernandinæ*, which were exhibited.

February 25, 1834.

Lieut.-Col. Sykes in the Chair.

A letter was read, addressed to the Secretary by M. W. Bojer, Corr. Memb. Z.S., and dated Mauritius, Nov. 15, 1833. It referred principally to the animal from Madagascar, which was transmitted in the spring of last year to the Society by the late Mr. Telfair, and which was brought by Mr. Bennett on April 9, 1833, (Proceedings, Part I. p. 46,) under the notice of the Society as the type of a new genus, for which he proposed the name of *Cryptoprocta*, on account of its possessing an anal pouch, and being thereby distinguishable from *Paradoxurus*, F. Cuv. One of the habits of the *Cryptoprocta ferox* indicated, during the life of the animal, the existence of this pouch: when violently enraged, and it was apt to become exceedingly ferocious on the sight of a morsel of flesh, "it frequently gratified the persons present with, not an odoriferous, but a most disagreeable smell, very like that of *Mephitis*." When its voracity was not thus excited, it was "quite domesticated and extremely fond of playing with children," and ran "about the house and yard free and sprightly, eating everything." When at liberty "it lay constantly in a rolling posture;" in confinement its sleeping position was not that of the *Viverræ*, "but always on its side, or even on its back, holding with its fore-feet the small wires of its cage." "It died of epileptic fits, which tormented it for nearly three months, and during the last few days of its existence the attacks were very strong and frequent." It had lived in the Mauritius, M. Bojer states, about twenty-five months; and he feels on this account some hesitation as to the immature condition of its dentary system, inquiring whether "this period was not sufficient for its development, or were the detention and domestication the cause of the imperfection?"

With reference to this inquiry, Mr. Bennett remarked that in the *Viverridæ* generally the replacement of the milk teeth takes place at a comparatively late period of existence, a fact recorded by Mr. Gray in the 'Proceedings of the Committee of Science and Correspondence' of this Society (Part II., p. 65), and principally insisted on as regards *Paradoxurus*, a genus most intimately allied to *Cryptoprocta*. He added, that the fits of which the animal died were not improbably occasioned by the irritation of dentition.

Mr. Bennett's account of *Cryptoprocta ferox*, with a figure of the animal, will be published in the Second Part of the Society's 'Transactions.'

The reading was commenced of a Paper, entitled "Descriptions of New Species of *Calyptraidæ*: by W. J. Broderip, Esq.;" and the *Shells* described in it, chiefly obtained from the collection of

Mr. Cuming, were exhibited. The abstract of this Paper, including the characters of the new species, will be given on the completion of the reading of it.

Mr. Owen read a Paper "On the Anatomy of the *Calyptæidæ*." After referring to the account given by Cuvier of the anatomy of *Crepidula*, to that by M. Deshayes of *Calyptæa*, and to M. Lesson's of *Crepidatella*, as elucidating the general plan of organization in this family, he proceeds to describe the structure of *Calypeopsis*.

The anatomy of this genus agrees very nearly with that of the before-known genera of the family, scarcely differing, except in the comparative extent of the locomotive and respiratory systems; but Mr. Owen has been enabled to add to the labours of his predecessors an account of the *testis*, and a description of the salivary glands. The *testis* is lodged in a membranous chamber, and consists of a glandular part of a light brown colour, and of a fibrous texture when seen under the lens; though, from analogy, the apparent fibres are no doubt seminal tubes. By the side of the *testis* there is a bag, or *vesicula seminalis*, appropriated to receive the secretion, which communicates with the termination of the oviduct posterior to the *anus*; the *anus* being situated on the right side of the branchial orifice, anterior to the *testis*, which here separates it from the oviduct. Between the *testis* and the process on the right side of the neck (regarded by Cuvier as the *penis*,) Mr. Owen has been unable to trace any communication: he feels, consequently, convinced that if this process forms part of the male generative system, it is to be regarded rather as an exciting than an intromittent organ. The salivary apparatus consists of two elongated follicles with glandular *parietes*, occupying the neck on either side of the *æso-phagus*, anterior to the nervous collar, and opening into the *æso-phagus* on each side of the base of the lingual plate.

After passing in review the several systems, Mr. Owen concludes by remarking on the internal chamber or cup which exists in the shells of this family. He regards it as being necessitated by the greater extent of the locomotive powers in *Calyptæa* than in *Patella*; a calcareous plate being interposed between the *viscera* and the foot to protect them from the pressure to which they would otherwise be exposed during the comparatively extensive and frequent contractions of the latter organ. As respiration has a direct relation to locomotion, the *Calyptæidæ* approach towards the higher marine univalves in the organs dedicated to that function. Throughout the family the extent of the respiratory *lamina* is found to correspond with the extent of the internal shell, and with the extent and organization of the foot.

Numerous specimens were exhibited of *Birds* collected in North America, principally in the United States, by George Folliott, Esq., and presented by him to the Society. At the request of the Chairman, Mr. Gould brought them severally under the notice of the Meeting. His principal object being to illustrate, so far as these

birds were concerned, the geographical distribution of allied or identical species, he directed his observations chiefly to the determination of those North American Birds which seemed to him to be referrible to European species, and of those which, having been generally considered as identical with European, appeared, on direct comparison, to present differences in form and colouring.

The *common Turnstone* of Europe, *Streptilas collaris*, Temm., appears to be not only identical with the *Turnstone* of North America, but to be spread, without any tangible variation, over almost every portion of the globe. The *Sanderling*, *Calidris arenaria*, Temm., and the *Knot*, *Tringa Canutus*, Linn., are also identical in both continents; as is the *great white Heron* or *Egret*, *Ardea Egretta*, Temm. The *common Tern* or *Sea-Swallow* of England, *Sterna Hirundo*, Linn., occurs equally in North America. The *common Crow*, *Corvus Corone*, Linn., is also identical in both continents.

With respect to the *Whimbrel*, *Numenius phæopus*, Temm., and the *little Sandpiper*, *Tringa Temminckii*, Mr. Gould stated himself to be unable to determine as to their identity without the comparison of more specimens from America than he had yet been able to obtain for the purpose of examination.

The *Cross-bill* of North America Mr. Gould showed to be very distinct from that of Europe, the *Loxia curvirostra*, Linn.; it is one third less in all its proportions, and is somewhat less brilliant in colouring. The *Ring Dottrel* of North America is also specifically distinct from that of Europe, the *Charadrius Hiaticula*, Linn.; independently of differences in admeasurement, its semipalmated foot will always serve to distinguish it.

In addition to the *Birds* that have been already mentioned, Mr. Folliott's collection contained a series of the *Sylviadæ* of the United States, several *Fly-catchers*, the *Orphea rufa*, &c., &c.

Mr. Gray exhibited specimens of the shelly covering of a *Radiated* animal, allied to the *Echinidæ* and the *Asteriidæ*, which he regarded as the type of a new genus, and for which he proposed the name of

GANYMEDA.

Corpus hemisphæricum, depressum; depressione dorsi centrali quadrangulari.

Os inferum, centrale.

Anus nullus:

Ambulâcra nulla."

"The body is hemispherical, depressed, thin, chalky and hollow.

"The back is rounded, rather depressed, flattened behind, with a rather sunk quadrangular central space.

"The sides are covered with sunken angular cavities with a small round ring, having an oblong transverse subcentral hole in their base.

"The under side is small, rather concave, with five slight sloping elevations from the angles of the mouth to the angles of the rather pentagonal margin. The edge is simple.

“The mouth is central. The vent none.

“The cavity is simple.

“The *parietes* are thin and minutely dotted, and the centre of the dorsal disc is pellucid.

“This genus is very nearly allied to the fossil described by Dr. Goldfuss in his beautiful work on Petrifications, under the name of *Glenotremites paradoxus* (tab. 49. f. 9. and t. 51. f. 1.), with which it agrees in external appearance and form, in the possession of a sunken space on its upper surface, and in having only a single inferior pentagonal mouth. It differs from *Glenotremites* by being unfurnished with *ambulacra* running from the angle of the mouth to the margin, by being unprovided with conical cavities between those near the mouth, and by having in the flattened disc on the back a central quadrangular impression instead of the pentagonal star of that genus.

“Dr. Goldfuss describes the glenoid cavities on the surface as giving attachment to spines similar to those of the *Turban Echini*, (*Cidaris*, Lam.), and states that the under surface is covered with very small tubercles to which he believes spines were attached. The cavities on the surface of *Ganymeda* and the pits in them have very much the form of those figured by Dr. Goldfuss in his fossil, but I cannot regard them as being fitted for the attachment of spines: they have much more resemblance to the mouths of cells. So great, indeed, is this resemblance, that I entertained doubts whether the whole mass might not be a congeries of cells like the *Lunulites*, rather than the case of a single body, until I considered that it was impossible, from its form, that it could increase in size with the growth of the animal, and that its exceeding regularity proved that it must be the formation of a single creature.

“I am induced to consider these two genera, though differing in the above-stated particulars, as forming a family or order between the *Echinidæ* and the *Asteriidæ*; allied to the latter in having only a single opening to the digestive canal, and agreeing with the former in form and consistence, but differing from it in not being composed of many plates.

“I only know two specimens of this genus, which I believe were found on the coast of Kent, as I discovered them mixed with a quantity of *Discopora Patina* which I collected several years ago from *fuci* and shells on that coast. The specimens are $\frac{1}{8}$ of an inch in diameter.

“I propose to call the species *Ganymeda pulchella*.”

March 11, 1834.

William Spence, Esq., in the Chair.

Specimens and drawings were exhibited of a *freshwater Tortoise*, forming part of the collection of Mr. Bell, by whom it was described as the type of a new genus, for which he proposed the name of

CYCLEMYS.

Sternum latum, testam dorsalem longitudine ferè æquans, integrum, solidum ; testæ dorsali ligamento squamato connexum.

CYCLEMYS ORBICULATA. *Cycl. testá suborbiculari, carinatá, posticè dentatá, fuscá ; scutis sterni flavescentibus, fusco radiatim lineatis.*

Long. dorsi, 8 unc. ; lat. 7 ; alt. 3.

Emys orbiculata, Bell.

Pullus. Emys Dhor, Gray, Syn. Rept., p. 20. ?

Hab. in Indiâ.

Mr. Bell regards the *Tortoise* which he has thus characterized as supplying a link in the connecting series of the *land* with the *freshwater* families which has hitherto been wanting ; and as especially valuable in the natural arrangement, by the clue which it furnishes to the correct location of the Indian forms of the genus *Emys*. It is, indeed, most nearly related to *Emys spinosa*, and on a superficial observation might almost be referred to that species ; but on closer examination it is found to differ from that *Tortoise*, not only specifically, but generically also : its sternal bones are permanently separated from the dorsal ones, with which they are connected by means of a ligament alone, similar to that which performs the same office in *Terrapene*. From the *Box-Tortoises*, however, to which, in this point of its structure, it is so closely related, *Cyclemys* is altogether distinct, the whole of its *sternum* being entire, instead of having, as is invariably the case in *Terrapene*, one or more transverse divisions of the *sternum* itself, the lobes of which move as on a hinge. In *Terr. Europæa* this mobility of the *sternum* exists in each lobe in a small degree, combined with the ligamentous connexion of the sternal to the dorsal bones. In *Cyclemys* the whole *sternum* moves together, though very slightly.

The transition from the *land* to the *freshwater Tortoises* may consequently be regarded as commencing in *Terrapene* ; passing through *Terr. Europæa* to *Cyclemys orbiculata* ; and thence through the Indian forms of *Emys*, which so closely resemble the latter species, to the other forms of *Emys* : the natural series of connexion between the *Testudinidæ* and the *Emydidæ* being thus completed.

The exhibition was resumed of the new species of *Shells* contained in the collection of Mr. Cuming. Those now exhibited were accom-

panied by characters by Mr. G. B. Sowerby, and consisted of species and varieties additional to those previously characterized by Mr. Broderip, (Proceedings, Part I. p. 52.) of the

Genus CONUS.

CONUS ALGOENSIS. *Con. testá tenuiusculá, subcylindracedá, lævi, fuscá, fasciá unicá seu fasciis duabus interruptis albis; spirá brevi, subrotundatá, albo fuscoque articulatá: long. 1·15, lat. 0·55 poll.*

Hab. ad littora Africæ Meridionalis.

Found on the sands at Algoa Bay.—G. B. S.

CONUS AULICUS.

Var. roseus. *Testá formá et staturá Con. Aulico omninò simillimá, maculis irregulariter subtrigonis, roseis.*

Hab. ad Insulam Annaa.

This, the most beautiful variety of *Con. Aulicus*, is found on the coral reefs around the Island of Annaa or Chain Island.—G. B. S.

CONUS NUSSATELLA.

Var. tenuis. *Testá tenui, albá, flavicante nebulatá, punctulis fuscis transversè seriatim dispositis; striis transversis tenuissimis.*

Hab. ad Insulam Annaa.

Found on the coral reefs.

This variety differs in being more slender, much thinner, more produced at the spiral end, and wider anteriorly, from the ordinary variety. Its transverse *striæ* are, moreover, very fine, and its brown specks much more distant and regular.—G. B. S.

CONUS TENDINEUS.

Var. granulosis. *Testá formá et staturá omninò Con. tendinei, striis transversis confertis granulosis.*

Hab. ad Insulam Annaa.

Found on the coral reefs.—G. B. S.

CONUS LUZONICUS.

Var. *Testá formá et staturá omninò Con. Luzonici, fusco-nigricante, fasciá interruptá medianá cærulescente-albidi, anticè albido variá.*

Hab. ad Insulas Gallapagos.

Found in the clefts of rocks at low water.

A specimen of the more usual variety, which accompanies these, shows the *epidermis*.—G. B. S.

CONUS BRUNNEUS, Wood. *Con. testá turbinatá, crassá, coronatá, fuscá, maculis albis transversè fasciatim dispositis; spirá subprominulá, albo fuscoque maculatá, spiraliter sulcatá, tuberculis magnis; basi lineis elevatis; subgranosis: long. 1·8, lat. 1· poll.*

Wood, Suppl. pl. 3. f. 1.

Variat testá crassiore, totá fuscá, immaculatá.

Hab. ad Insulas Gallapagos, ad Puertam Portreram et ad Panamam.

Found in the clefts of rocks.—G. B. S.

CONUS PULCHELLUS. *Con. testâ oblongo-turbinatâ, coronatâ, albicante roseo tinctâ ; supernè turgiduld, infrâ granoso-lineatâ ; punctulis nonnullis fusco-nigricantibus sparsis ; aperturâ intùs carnéâ : long. 1·5, lat. 0·8 poll.*

Hab. ad littora occidentalia Australiæ.
From Freemantle.—G. B. S.

CONUS DIADEMA. *Con. testâ turbinatâ, lævi, crassâ, coronatâ, fuscâ, fasciâ angustâ medianâ pallidiorè ; spirâ subdepressâ, tuberculis magnis, albis ; apice mucronato ; basi lineis elevatiusculis nonnullis ; aperturâ intùs purpureo-albicante : long. 1·7, lat. 1· poll.*

Hab. ad Insulas Gallapagos.

Found in the clefts of the rocks at low water.—G. B. S.

CONUS FERRUGATUS. *Con. testâ acuminato-conicâ, lævi, albâ, maculis longitudinalibus punctisque seriatim dispositis ferrugineis ; spirâ subacuminatâ, albâ, ferrugineo maculatâ ; basi sulcatâ : long. 1·7, lat. 0·8 poll.*

Hab. ad Sinum Californiæ et apud Insulam Guaymas.

This differs much from *Con. monilifer* in its proportions.—G. B. S.

CONUS REGALITATIS. *Con. testâ turbinatâ, lævi, crassiusculâ, supernè ventricosâ, spadiceâ, maculis punctulisque albo-cærulescentibus varidâ ; spirâ depressiusculâ, spiraliter sulcatâ ; basi lineis elevatiusculis paucis, subrugosis : long. 2·, lat. 1·1 poll.*

Hab. ad littora Americæ Centralis. (Real Llejos.)

Found in the clefts of rocks on sandy mud.

It may be designated *Real Llejos* or *Royalty Cone*.—G. B. S.

A specimen was exhibited of the *Musk Duck* of New Holland, *Hydrobates lobatus*, Temm. It had recently been presented to the Society by Lieut. Breton, R.N., Corr. Memb. Z. S., who entered into some particulars respecting its habits. He stated that these birds are so extremely rare, that he saw only thrèe of them during his various excursions, which extended over twelve hundred miles of country. He has never heard of any instance in which more than two were seen together. They are met with only on the rivers, and in pools left in the otherwise dry beds of streams. It is extremely difficult to shoot them, on account of the readiness with which they dive ; the instant the trigger is drawn, the bird is under water.

Some observations by Dr. Hancock on the *Lantern-fly* and other *Insects* of Guiana were read.

The writer concurs with M. Richard and M. Sieber in regarding as erroneous the statement of Madame Merian, that the *Lantern-fly*, *Fulgora lanternaria*, Linn., exhibits at night a brilliant light, and remarks that the whole of the native tribes of Guiana agree in treating this story as fabulous : it seems to be an invention of Europeans desirous of assigning a use to the singular diaphanous projection, resembling a horn lantern, in front of the head of the insect. He also states that the *Fulgora* rarely sing.

The insect whose song is most frequently heard in Guiana is the *Cicada clarisona*, the *Aria-aria* of the Indians, and *Razor-grinder* of the Colonists : in the cool shade of the forests it may be heard at almost every hour of the day ; but in Georgetown its song commences as the sun disappears below the horizon. At Georgetown this *Cicada* was never heard in 1804, when Dr. Hancock first visited the place ; but it is now very common, probably in consequence of the shelter afforded by the growth of many trees and shrubs in the gardens which have since been formed there. The sound emitted by it is “ a long, continuous, shrill tone, which might be compared almost to that of a clarionet, and is little interrupted, except occasionally by some vibrating undulations.”

March 25, 1834.

William Yarrell, Esq., in the Chair.

A specimen was exhibited of an *Albatross* presented to the Society by Lieut. Breton, Corr. Memb. Z. S., whose principal object in calling the attention of the Society to it was to mention that, being unprovided at the time at which the bird was killed with any of the ordinary preserving powder or soap, he had used for its preservation a mixture of Cayenne and black peppers with snuff and salt. The skin, well rubbed with this mixture, was brought through the inter-tropical regions in an ordinary trunk, affording free access to insects, and arrived in England uninjured. Lieut. Breton conceives that it may be advantageous to collectors to be made aware that the preservation of skins can be secured by articles so constantly at hand as those which he employed in this instance.

The exhibition was resumed of the new species of *Shells* forming part of the collection made by Mr. Cuming on the western coast of South America, and among the islands of the South Pacific Ocean. Those brought on the present evening under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby, and consisted of five species of the

Genus GASTROCHÆNA.

GASTROCHÆNA OVATA. *Gast. testâ ovatâ, albicante, longitudinaliter striatâ, striis exilibus, lamellosis, formam marginis semper sequentibus; longitudine lateris antici quintam partem testæ æquante: long. 1.2, lat. 0.7, alt. 0.7 poll.*

Hab. in Sinu Panamensi (Isle of Perico,) et ad Insulam Platæ.

Found in *Spondyli* at the Isle of Perico, and in coral rocks, at a depth of seventeen fathoms, at the Island of Plata.—G. B. S.

GASTROCHÆNA TRUNCATA. *Gast. testâ oblongâ, posticè rotundato-truncatâ, striatâ, sordidè albicante; epidermide tenui lamellosâ posticè tectâ; latere antico brevissimo, subacuminato: long. 1.4, lat. 0.7, alt. 0.7 poll.*

Hab. in Sinu Panamensi. (Isle of Perico.)

Found in *Spondyli*.—G. B. S.

GASTROCHÆNA BREVIS. *Gast. testâ breviter ovatâ, tenui, pellucidâ, striatâ, striis exilissimis; longitudine lateris antici octavam partem testæ æquante: long. 0.8, lat. 0.5, alt. 0.5 poll.*

Hab. ad Insulas Gallapagos et apud Insulam Lord Hood's dictam. Found in *Pearl oysters* in from three to seven fathoms.—G. B. S.

GASTROCHÆNA RUGULOSA. *Gast. testâ oblongâ, albidd, striatâ, rugulosâ, striis anticis prope marginem hiantem confertis, acutis; hiatu longissimo: long. 0·8, lat. 0·3, alt. 0·4 poll.*

Hab. ad Insulas Gallapagos et apud Insulam Lord Hood's dictam. Found with the last.—G. B. S.

GASTROCHÆNA HYALINA. *Gast. testâ ovali, albidd, hyalind, lævi, dorso longitudinaliter striato; latere antico brevi; hiatu duos trientes testâ æquante: long. 0·55, lat. 0·25, alt. 0·3 poll.*

Hab. ad Insulam Lord Hood's dictam. Found with the two last.—G. B. S.

A Note was read from Mr. Gray, giving an account of the arrival in England of two living specimens of *Cerithium armatum*, which had been obtained at the Mauritius, and had been brought from thence in a dry state. That the inhabitants of *land Shells* will remain alive without moisture for many months is well known: he had had occasion to observe that various marine *Mollusca* will also retain life in a state of torpidity for a considerable time, some facts in illustration of which he had communicated at a recent Meeting of the Society (Proceedings, Part I., p. 116.): the present instance included, however, a torpidity of so long a continuance as to induce him to mention it particularly. The animal, though deeply contracted within the shell, was apparently healthy, and beautifully coloured. It emitted a considerable quantity of bright green fluid, which stained paper of a grass green colour: it also coloured two or three ounces of pure water. This green solution, after standing for twelve hours in a stoppered bottle, became purplish at the upper part; but the paper retained its green colour though exposed to the atmosphere.

The Secretary mentioned an instance of the arrival in this country of a living *Cerithium Telescopium*, Brug., brought from Calcutta, in company with some small *Paludinæ*, which also reached England alive: these *Mollusca* were, however, kept in sea water frequently changed. The *Cerithium* was placed by Mr. G. B. Sowerby, for dissection, in the hands of the Rev. M. J. Berkeley and G. H. Hoffman, Esq., who have prepared a paper on its anatomy for the forthcoming No. of the 'Zoological Journal': it will be illustrated by a series of figures, which were exhibited to the Meeting. It is worthy of remark, that the spirit in which this animal was immersed for the purpose of killing it, and in which it was kept for some weeks, became of a dark verdigris colour.

Dr. Weatherhead exhibited two young *Ornithorhynchi* preserved in spirit, which he had recently received from New Holland, and stated his intention of presenting one of them to the Society's Museum. The smallest of them is about two inches in length; the largest about four. Both are destitute of hair; and in both the eye-lids are closed. In the smaller one there is a vestige of an umbilical slit.

The larger of the two is one of those which were kept in captivity, with their dam, by Lieut. the Hon. Lauderdale Maule, as noticed in a communication read at the Meeting of the Committee of Science and Correspondence of this Society on September 11, 1832, (Proceedings, Part II. p. 145). With it was exhibited the dried skin of the dam, to which the mammary glands, largely developed, had been left adhering.

A Note from Lieut. Breton, Corr. Memb. Z. S., was read, giving an account of an *Echidna*, which lived with him for some time in New Holland, and survived a part of the voyage to England. The animal was captured by him on the Blue Mountains: it is now very uncommon in the colony of New South Wales. He regards it as being of its size the strongest quadruped in existence. It burrows readily, but he knows not to what depth.

Previously to embarkation this individual was fed on ant-eggs and milk, and when on board its diet was egg chopped small with liver and meat. It drank much water. Its mode of eating was very curious, the tongue being used at some times in the manner of that of the *Chamæleon*, and at others in that in which a mower uses his scythe, the tongue being curved laterally, and the food, as it were, swept into the mouth: there seemed to be an adhesive substance on the tongue, by which the food was drawn in. The animal died suddenly off Cape Horn, while the vessel was amidst the ice; perhaps in consequence of the cold, but not improbably on account of the eggs with which it was fed being extremely bad.

Lieut. Breton agrees with MM. Quoy and Gaimard in believing that little difficulty would be experienced in bringing alive to Europe the *Echidna* or *Porcupine Ant-eater* of New Holland. He suggests the following plan.

Previously to embarkation the animal should gradually be weaned from its natural food of ants, which may be done with great facility by giving it occasionally ants and ant-eggs, (the last is, in fact, more properly speaking, its common food,) but more generally milk, with eggs chopped very small, or egg alone. When on board ship it should be kept in a deep box, with strong bars over the top, and a door. It is requisite that the box or cage be deep, because the animal constantly tries its utmost to escape; and possessing very great strength, is liable to injure itself in its exertions to force its way through the bars. The effluvia arising from its excrement are so extremely fetid, that it cannot be kept altogether in a cabin, unless the cage be frequently cleaned. While this is being done, the *Echidna* may be allowed its liberty, but must be narrowly watched, or it will certainly go overboard. It is absolutely necessary that the eggs which are to constitute its food during the voyage be as fresh as possible: they can be preserved in lime water. If milk is not to be procured, water must be supplied daily; and egg and liver (or fresh meat) cut small, should be given at least every alternate day; but, when the weather will permit, it should be fed once a day. Half an egg (boiled hard) and the

liver of a fowl or other bird will suffice for a meal. Finally, the animal should be kept warm, and well supplied with clean straw. It will be as well to nail two or three pieces of wood (battens) across the floor of the cage, to prevent the animal from slipping about when the ship is unsteady.

April 8, 1834.

Dr. Marshall Hall in the Chair.

A Letter was read, addressed to the Secretary by John Hearne, Esq., Corr. Memb. Z. S., dated Port au Prince, Feb. 15, 1834. It accompanied a present to the Society of a pair of the *common Goats* of Hayti; referred to various *Birds* which it is the intention of the writer to forward when the season is more advanced; and gave some particulars of a bird known in the island by the name of the *Musicien*, respecting which Mr. Hearne hopes to obtain, in the course of a journey which he projects into the higher lands of the interior, more full information than he at present possesses.

Some extracts were read from a Letter, addressed to Mr. Yarrell by Dr. A. Smith, Corr. Memb. Z. S., dated Cape Town, Jan. 12, 1834. It refers to the projected expedition from the Cape of Good Hope into the interior of Africa, which it is the intention of the writer to accompany. It is designed to proceed directly northward from Latakoo; and Dr. Smith anticipates in this new field numerous additions to his Zoological stores: along the eastern and western coasts he has already penetrated to a considerable distance. Speaking of the *Rodentia*, so numerous in Southern Africa, he mentions as collected by him, in his late visit to Port Natal and the Zoola country, a second species of his genus *Dendromys*. He also notices a new species of *Chrysochloris* obtained by him in the same country.

At the request of the Chairman, Mr. Gould exhibited an extensive series of *Birds* of the genus *Trogon*, Linn., comprising twenty-five species. The greater number of them form part of the Society's Museum, and the others were derived from his own collection.

He pointed out the distinguishing marks of the two sections of the genus, one of which is confined to America, while the other inhabits the Old Continent. He also pointed out among the species exhibited there which he regarded as hitherto undescribed; these he named and characterized as follows:

TROGON ERYTHROCEPHALUS. *Trog. capite guttureque sordidè sanguineis, hoc posticè strigà albà obsoletà cincto; pectore ventrequè coccineis; dorso tectricibusque caudæ superioribus arenaceo-castaneis; scapularibus alæque tectricibus majoribus nigro alboque flexuosim strigatis.*

Fœm. Capite guttureque arenaceo-brunneis; torque albo magis quam in mare conspicuo; scapularibus nigro brunneoque strigatis.

Rostrum brunneum; mandibularum basis regioque ophthalmica nuda coccineæ.

Long. tot. 12 vel 13 unc.; alæ, 5.

Hab. apud Rangoon.

TROGON MALABARICUS. *Trog. capite, gutture, pectoreque fuliginoso-nigris, hoc torque lato albo; ventre coccineo; dorso tectricibusque caudæ superioribus sordidè arenaceo-brunneis; scapularibus tectricibusque alæ majoribus nigro alboque flexuosim strigatis.*

Fœm. *Capite, dorso, gutture, pectoreque sordidè brunneis; ventre luteo; pectore haud torquato; scapularibus nigro brunneoque strigatis.*

Rostrum nigrum; mandibularum basis regioque ophthalmica nuda cœruleæ.

Long. tot. 11 vel 11½ unc.; alæ, 5.

Hab. ad littus Malabar dictum.

In both these birds the quill-feathers are black, edged with white; the three outer tail-feathers on each side black at their base and broadly white at their tips; and the two middle tail-feathers tipped with black, their remaining portion being of a chestnut brown, which in *Trog. erythrocephalus* is deep, and in *Trog. Malabaricus* light.

TROGON ELEGANS. *Trog. vertice, genis, guttureque nigris; cervice, dorso, pectoreque metallicè aureo-viridibus, hoc posticè torque albo cincto; ventre saturatè coccineo; scapularibus alæque tectricibus albo nigrescenti-brunneoque minutissimè flexuosim strigatis, pogniis externis lined albâ longitudinali notatis.*

Fœm. *Capite, pectore, dorsoque saturatè brunnescenti-griseis; torque albo obsoleto; ventre quam in mari pallidiore.*

Rostrum saturatè aurantio-luteum.

Long. tot. 12 unc.; alæ, 5; caudæ, 7.

Hab. apud Guatimala, in Mexico.

The tail is considerably lengthened in the male, and its four middle feathers are bronzed green on the upper surface, and deeply marked with black at the tip; the three outer feathers are white at the tip, and barred to a great extent on their outer edges with alternate lines of black and white, a marking which appears also, though less extensively, on their inner edges, the remainder being black: in some specimens this marking of the tail is reduced to an irregular and minute sort of dotting, in place of the bars. In the female the middle tail-feathers are of a dull chestnut, tipped with black, and the three outer feathers much resemble those of the male, but are less decidedly dotted, assuming rather a freckled appearance.

Mr. Bennett briefly recapitulated the facts and reasonings which have from time to time been brought before the Society on the subject of the abdominal glands of the *Monotremata*, regarded by Meckel and by Mr. Owen as mammary, and by M. Geoffroy-Saint Hilaire as connected with a peculiar function, to which, however, different results have been attributed by that learned zoologist at various times. The object of the recapitulation was to introduce an abstract of a recent Memoir by M. Geoffroy-Saint-Hilaire, "On the structure and use of the Monotrematic glands, and particularly on those glands in the *Cetacea*." In this Memoir the author regards the mammary glands of the *Cetacea*, so analogous in structure to those of *Ornitho-*

rhynchus and *Echidna*, as having a function similar to that which he has attributed to these latter : he assumes that the fluid secreted by them is not milk but mucus, and that this mucus is not sucked by the young, (whose organs of deglutition he describes as being unfitted for sucking,) but is ejected by the mother into the water, the element in which they dwell, where, by imbibition of a portion of the water, it becomes thickened, and, floating by the mother's side, is devoured by the progeny.

M. Geoffroy has subsequently changed his opinion as to the nature of the fluid secreted by the nutrient glands of the *Cetacea*. He had had an opportunity of examining these glands in some *Porpoises*, and had found the secretion to be actually milk. He still, however, maintains that the young of the *Cetacea* do not suck, but that the mother ejects the nutritious fluid from the milk receptacle into the mouth of her young.

April 22, 1834.

Joseph Sabine, Esq., Vice-President, in the Chair.

Some Notes by J. B. Harvey, Esq., Corr. Memb. Z. S., were read: they accompanied a collection of *Shells* and *Crustacea* made by the writer on the coast of Devonshire, near Teignmouth. The several specimens were exhibited.

Among them were numerous individuals of *Cypræa Pediculus*, *Cyp. bullata*, and *Cyp. Arctica*. Of the former there are two varieties, one spotted and the other without spots. The spotted variety, Mr. Harvey states, is generally smaller than the plain one, and is less produced on one side near the *apex*.

Cyp. bullata is found in the same localities as *Cyp. Pediculus*, but it may be doubted whether it is the young of that species: it is so comparatively rare, that Mr. Harvey has dredged up only six specimens of it, while he has collected more than a hundred of *Cyp. Pediculus*: he possesses, moreover, young individuals of *Cyp. Pediculus* of smaller size than specimens of *Cyp. bullata*. In the latter the whorls are more produced at the *apex*, and the shell is so delicate as to be broken by even a slight fall.

On *Cyp. Arctica* Mr. Harvey remarks, that although its size and appearance are in favour of its being a young shell, he hesitates in referring it to the immature condition of the unspotted *Cyp. Pediculus*: his principal ground for doubt is the extreme rarity of *Cyp. Arctica*. He inquires, however, whether the young animal may not, perhaps, live deeply imbedded in the sand for a certain period before it comes to the surface, and thus generally elude the search of the conchologist until its shell becomes matured?

With the *Shells* Mr. Harvey had transmitted to the Society living specimens of *Caryophyllia Smithii*, Brod., the *Torbay Madrepora*, whose habits were described by Mr. De la Beche in the 'Zoological Journal' a few years since: these individuals died on the journey. They are attainable only at the lowest spring tides. They may be kept alive in sea water, changed every second or third day, by feeding them with a very small piece of fresh fish scraped, and deposited with a quill upon the animal, by which it is sucked in in a manner exactly similar to that of *Polypi*. The colours of some individuals are very vivid; and among these green, blue, and blueish grey are the most predominant. Adhering to the *Caryophyllia* is occasionally found the *Pyrgoma Anglicum*, Leach, which appears to occur in no other situation.

At the request of the Chairman, Mr. Thompson of Belfast exhibited an immature specimen of the *long-tailed Manis*, *Manis tetractyla*, Linn., for the purpose of showing that when very young,

(the present specimen being but ten inches in length,) the animal is as thoroughly armed, both with respect to scales and spines, as the full-grown one. The specimen was also considered by Mr. Thompson as interesting on account of its locality, it having been obtained in Sierra Leone.

Mr. Thompson also read the following notice of the *Cuckoo*, *Cuculus canorus*, Linn., copied from his Journal, under the date of 28th May, 1833.

“On examination of three cuckoos to-day, which were killed in the counties of Tyrone and Antrim within the last week, I found them all to be in different stages of plumage: one was mature; another (a female) exhibited on the sides of the neck and breast the reddish-coloured markings of the young bird, the remainder of the plumage being that of maturity; the third specimen had reddish markings disposed entirely over it, much resembling the plumage described by M. Temminck as assumed by ‘les jeunes tels qu’ils emigrent en automne’, (Man. d’Orn, tom. 1. p. 383), but having a greater proportion of red, especially on the tail coverts, than is specified in his description of the bird at that age. This individual proved, on dissection, to be a female, and did not contain any eggs so large as ordinary sized peas. The stomach, with the exception of the presence of some small sharp gravel, was entirely empty, and was closely coated over with hair.”

Attention was called to the stomach of one of these birds, that the hair with which it is lined might be observed. From its close adhesion to the inner surface of the stomach, and from the regularity with which it is arranged, Mr. Thompson was at first disposed to consider this hair as being of spontaneous growth; but part of the stomach having been subjected to maceration in water, and afterwards viewed through a microscope of high power, the hairs proved, to the entire satisfaction of Mr. Owen and himself, to be altogether borrowed from the *larvæ* of the *Tiger-moth*, *Arctia Caja*, Schrank, the only species found in the stomach of the bird in various specimens from different parts of the country which were examined by Mr. Thompson in the months of May and June, 1833.

Mr. Thompson also read a Catalogue, with incidental notices, of *Birds* new to the Irish Fauna. He prefaced his list by remarking that he did not bring them forward as unrecorded, without having previously consulted every work in which he was aware that the birds of Ireland are either particularly described or incidentally noticed; including the Statistical Surveys of the Irish counties, which contain, in several instances, Catalogues of the Birds that have been observed in them.

The Catalogue is as follows:

1. *Alpine Swift*, *Cypselus alpinus*, Temm. By the ‘Dublin Penny Journal’ of March 30, 1833, my attention was directed to a *rara avis*, said to have been killed at Rathfarnham, and preserved in the fine collection of birds belonging to Thomas W. Warren, Esq. On calling to

see this bird (its species not having been ascertained,) I found it to be the *Alpine Swift*, which has not before been recorded as obtained in any part of Ireland; the specimen recognised as the *Cypselus alpinus* by my friend, William Sinclair, Esq., and communicated by him to Mr. Selby for insertion in the British Fauna, having been met with off Cape Clear, at the distance of some miles from land.

Mr. Warren's specimen was received by him on the 14th of March, and was then in a perfectly fresh state.

2. *Redstart*, *Phœnicura Ruticilla*, Swains. This species is recorded on the excellent authority of Robert Ball, Esq., of Dublin, who has, in the autumnal months, shot several of them in the vicinity of Youghal, co. Cork.

3. *Bearded Titmouse*, *Parus biarmicus*, Linn. Mr. William S. Wall, Bird Preserver, Dublin, who is very conversant with British Birds, assures me that he received a specimen of this species from the neighbourhood of the river Shannon a few years since.

4. *Rock Pipit*, *Anthus aquaticus*, Bechst. Common about the rocks, &c., on the seashore, in the North of Ireland.

5. *Crested Purple Heron*, *Ardea purpurea*, Linn. Of this bird there is a fine specimen in mature plumage in the collection of Mr. Warren, which I am assured was shot at Carrickmacross.

6. *Little Bittern*, *Botaurus minutus*. A specimen of this bird, shot in the county of Armagh, is preserved in the cabinet of William Sinclair, Esq., Belfast. Specimens have also been obtained in the east and south of Ireland.

7. *Night Heron*, *Nycticorax Europæus*, Steph. Of this bird I saw a specimen a few weeks since in the shop of Mr. Glennen, Bird Preserver, Dublin, which he informed me was sent him in a fresh state from Letterkenny, early in the present year.

8. * *Spoonbill*, *Platalea leucorodia*, Linn. Mr. Ball informs me, that in the autumn of 1829, three of these birds were seen in company near Youghal, and that one of them was shot. It was preserved by Dr. Green of that town, and is at present in his possession.

9. * *Green Sandpiper*, *Totanus ochropus*, Temm. Of this bird I have seen Irish specimens in several collections.

10. *Dottrel*, *Charadrius morinellus*, Linn. A specimen of this bird, which was shot near Downpatrick a few years ago, is preserved in the house of Mr. Reid, at Ballygowan Bridge (Down).

11. *Black-winged Stilt*, *Himantopus melanopterus*, Meyer. In the winter of 1823, a bird of this species was seen by Mr. Ball in the neighbourhood of Youghal.

12. *Gadwall*, *Chauliodus strepera*, Swains. Dr. Robert Graves of Dublin informed me that a specimen of this bird which I saw in his collection was shot at Wexford.

13. *Smew*, *Mergus albellus*, Linn. Of this bird I have seen specimens from different parts of Ireland.

14. *Little Auk*, *Mergus melanoleucos*, Ray. There is a specimen of this bird in the collection of Dr. Graves, which was shot at Wexford.

15. * *Black Tern*, *Sterna nigra*, Linn. Mr. Ball has seen this bird in the month of July, for some years successively, at Roxborough, near Middleton, co. Cork.

In addition to these I may mention the

16. * *Blackcap Warbler*, *Curruca atricapilla*, Bechst., which, though stated in Ruddy's Dublin to be frequent in that county, admits of some doubt, as more than one species is commonly called by the name of *Blackcap* in Ireland. On the 1st March, 1834, I saw, in the shop of Mr. Galbraith, Bird Preserver, Belfast, a fresh specimen of an adult male *Blackcap*, which had been killed (probably the day before) in the garden at Down and Connor House, co. of Down.

Other individuals of the species marked thus * have been recorded in the MS. Catalogue of the late J. Templeton, Esq.—W. T.

Mr. Thompson also stated that specimens of the true *Lestris parasiticus*, Temm., have repeatedly occurred in the Bays of Dublin and Belfast. He added, that during the great storm which took place on the 31st August, 1833, a great many specimens of the *Octopus octopodia* (which had not before been recorded as occurring on the shores of Ireland) were thrown ashore in Belfast Bay.

Mr. Owen read a Paper "On the Structure of the Heart of the *Perennibranchiate Amphibia*, or *Reptiles douteux* of Cuvier."

He briefly noticed the progressive discoveries relating to the heart of *Reptiles* which have been made since the time of Linnæus, and which have successively rendered inapplicable to the *Saurians*, *Chelonians*, and *Ophidians*, the phrase "Cor uniloculare, uniauratum", applied to the whole of the *Reptilia* in the '*Systema Naturæ*'. He alluded to the researches of Dr. Davy and M. Martin St. Ange on the structure of the heart in the *Caducibranchiate Amphibia*, from which it appeared that two auricles were appended to the ventricle in those *Reptiles*, as well as in the higher orders above mentioned. He then proceeded to give the results of an examination of the hearts of specimens of *Amphiuma*, Cuv., *Menopoma*, Harlan, *Proteus*, Schreib., and *Siren*, Linn. He selected the heart of the *Siren lacertina* as the subject of detailed description, considering that the genus *Siren*, in combining with persistent external *branchiæ* a limited number of extremities, exhibits the simplest form of the *Amphibious Reptile*.

The heart in this species consists of three distinct cavities, as in the higher *Reptilia*, viz. of two auricles and one ventricle. The auricles appear to form externally one large and remarkably fimbriated cavity, situated behind, and advancing forwards, on both sides of the ventricle and *bulbus arteriosus*. The venous blood is poured into a large membranous sinus by one posterior and two anterior *venæ cavæ* prior to passing into the auricle. The conjoined trunk of the pulmonary veins appears also to enter this sinus, but it passes through without communicating with that cavity, and terminates in a small separate auricle, which opens into the ventricle by an orifice distinct from, but close to, the orifice of the right auricle. In the ventricle a rudimentary *septum* was noticed as affording an indication of a type of forma-

tion superior to that of *Fishes*. In the *bulbus arteriosus* a longitudinal projection appears as a commencing division of the single artery, which is given off from the ventricle.

The differences in the structure of the preceding parts, and in the origin and distribution of the different vessels exhibited by the other genera of *Perennibranchiata*, were successively noticed; and the affinities indicated by these modifications to the *Caducibranchiate Reptiles* on the one hand, and to the *Cartilaginous Fishes* on the other, were also pointed out.

The Paper was illustrated by drawings of the structures described in it.

May 13, 1834.

Richard Owen, Esq., in the Chair.

A Note was read from Mrs. Barnes, in which it was stated that that lady had brought up from the nest two of the smallest species of Jamaica *Humming-birds*. They were so tame, that at a call they would fly to her, and perch upon her finger. Their food was sugar and water. During the passage to England one of them was killed by the cage in which they were kept being thrown down in a storm ; its companion drooped immediately, and died shortly afterwards.

It was remarked that injury to the bird in consequence of such an accident might be prevented by the introduction of a gauze-net screen into the cage, at some little distance within the wires.

Specimens were exhibited of several *Mammalia* from India, which had recently been presented to the Society by Lord Fitzroy Somerset. They were brought under the notice of the Meeting by Mr. Bennett, who called particular attention to the skin of a *Paradoxurus*, which he regarded as that of *Par. prehensilis*, Gray, a species hitherto known only by a drawing of Dr. Hamilton's preserved in the East India House.

The general colour of the animal is a pale greyish brown, in which longer black hairs are sparingly intermixed on the sides. On the back of the head and neck, and along the middle line of the back, these black hairs are almost the only ones that are visible. On the loins they form three indistinct black bands, of which the lateral are in some measure interrupted. The head is brownish, with the usual grey mark both above and below the eyes, and there are some short grey hairs between the eyes and across the forehead. The limbs are brownish black, rather darker towards their upper part. The tail, at its base, is of the same colour as the back, and rapidly becomes black ; its terminal fifth is yellowish white. The ears are rather large, and sparingly covered with short brownish hairs.

Specimens were exhibited of three species of *horned Pheasants*, including the *Tragopan Temminckii*, Gray. In illustration of the history of the latter bird, Mr. G. Bennett, Corr. Memb. Z.S., placed upon the table drawings of specimens observed by him at Macao, and showing the remarkable wattle in various degrees of development. He also read a note on the subject.

In its contracted state the membrane has merely the appearance of a purple skin under the lower mandible ; and it is even sometimes so much diminished in size as to be quite invisible. It becomes developed during the early spring months or pairing season of the year,

from January to March, when it is capable of being displayed or contracted at the will of the bird. During excitement it is enlarged, falls over the breast, and exhibits the most brilliant colours, principally of a vivid purple, with bright red and green spots : the colours vary in intensity according to the degree of excitement. When they are most brilliant, or, in other words, when the excitement is great, the purple horns are usually elevated. The living specimens seen by Mr. G. Bennett were procured from the province of Yunnan, bordering on Thibet. Mr. Beale, in whose aviary at Macao they were, had not succeeded in obtaining females of this race. Its Chinese name is *Tu Xou Nieu*.

Mr. G. Bennett also read a note on the habits of the *King Penguin*, *Aptenodytes Patachonica*, Gmel., as observed by him on various occasions when in high southern latitudes. He described particularly a colony of these birds, which covers an extent of thirty or forty acres, at the north end of Macquarrie Island, in the South Pacific Ocean. The number of *Penguins* collected together in this spot is immense, but it would be almost impossible to guess at it with any near approach to truth, as, during the whole of the day and night, 30,000 or 40,000 of them are continually landing, and an equal number going to sea. They are arranged, when on shore, in as compact a manner and in as regular ranks as a regiment of soldiers ; and are classed with the greatest order, the young birds being in one situation, the moulting birds in another, the sitting hens in a third, the clean birds in a fourth, &c. ; and so strictly do birds in similar condition congregate, that should a bird that is moulting intrude itself among those which are clean, it is immediately ejected from among them.

The females hatch the eggs by keeping them close between their thighs ; and, if approached during the time of incubation, move away, carrying the eggs with them. At this time the male bird goes to sea and collects food for the female, which becomes very fat. After the young is hatched, both parents go to sea, and bring home food for it ; it soon becomes so fat as scarcely to be able to walk, the old birds getting very thin. They sit quite upright in their roosting-places, and walk in the erect position until they arrive at the beach, when they throw themselves on their breasts, in order to encounter the very heavy sea met with at their landing-place.

Although the appearance of *Penguins* generally indicates the neighbourhood of land, Mr. G. Bennett cited several instances of their occurrence at a considerable distance from any known land.

The Secretary announced the recent addition to the Menagerie of the *Perdix sphenura*, Gray ; the *Philippine Quail*, *Coturnix Sinensis*, Cuv. ; and the *Hemipodius Dussumieri*, Temm. ? : all presented to the Society by John Russel Reeves, Esq., of Canton. He added, that a second male specimen of the *Reeves's Pheasant*, *Phasianus veneratus*, Temm., had also been sent to the Menagerie by John Reeves, Esq. A pair of the middle tail-feathers of the last-named bird, measuring upwards of five feet in length, and presented by Wm. Craggs, Esq., were exhibited.

Numerous specimens were exhibited from Mr. Cuming's collection, in illustration of a Paper by Mr. Broderip, entitled, "Descriptions of several New Species of *Calyptæidæ*."

The new species described in this paper are distributed and characterized as follows :

Subgenus CALYPTRÆA.

Testa subconica, subacuminata, cyathi basi adhærente, lateribus liberis.

α. *Cyatho integro.*

CALYPTRÆA RUDIS. *Cal. testâ fuscâ, subdepressâ, suborbiculari, radiatim corrugatâ, limbo crenato; cyatho concentricè lineato, albido, irregulariter subcirculari; epidermide subfuscâ: diam. 2 poll. circiter, alt. $\frac{7}{17}$.*

Hab. ad Panamam et Real Llejos.

This species, whose white onyx-like cup, adhering only by its base, shows to great advantage against the ruddy brown which is the general colour of the inside of the protecting shell, was found under stones. The young shells are the flattest and most regular in form, but their inside is generally of a dirty white, dimly spotted with brown.—W. J. B.

β. *Cyatho hemiconico, longitudinaliter quasi diviso.* (*Calyptæa, Less.*)

CALYPTRÆA CORRUGATA. *Cal. testâ subalbida, suborbiculari, subdepressâ, corrugatâ; intûs nitente; cyatho concentricè lineato, producto; epidermide fuscâ: diam. $1\frac{5}{8}$ poll. circ., alt. $\frac{1}{10}$.*

Hab. in Americâ Centrali. (Guacomayo.)

Found under stones at a depth of fourteen fathoms.—W. J. B.

CALYPTRÆA VARIA. *Cal. testâ albida, suborbiculari, crassiusculâ, longitudinaliter creberrimè striatâ; cyatho concentricè lineato, crassiusculo, producto: diam. $1\frac{3}{8}$, alt. max. $\frac{7}{8}$, alt. min. $\frac{3}{8}$ poll.*

Hab. in Oceano Pacifico. (Lord Hood's Island, the Gallapagos, and the Island of Muerte in the Bay of Guayaquil.)

This is a very variable species allied to *Cal. equestris*, and taking almost every shape which a *Calyptæa* can assume. It differs in thickness according to localities and circumstances.—W. J. B.

CALYPTRÆA CEPACEA. *Cal. testâ albâ, suborbiculari, subconcaâ, tenui, diaphandâ, striis numerosis subcorrugatâ; intûs nitente; cyathi terminationibus lanceolatis: long. $1\frac{1}{17}$, lat. $1\frac{1}{2}$, alt. $\frac{3}{8}$ poll.*

Hab. in sinu Guayaquil. (Island of Muerte.)

This was dredged up, adhering to dead shells, from sandy mud, at a depth of eleven fathoms. Besides other differences, the terminating points of the divided *cyathus* are much more lanceolate than they are in *Cal. varia*.—W. J. B.

CALYPTRÆA CORNEA. *Cal. testâ suborbiculari, complanatâ, albida, subdiaphandâ, concentricè lineatâ et radiatim striatâ; intûs nitente: diam. $\frac{9}{8}$, alt. $\frac{1}{8}$ poll.*

Hab. ad Aricam Peruvicæ.

Dredged up from sandy mud at a depth of nine fathoms.—W. J. B.

Subgenus CALYPEOPSIS, Less.

Cyatho interno integro, lateraliter adhærente.

CALYPTRÆA RADIATA. *Cal. testâ conico-orbiculari, albidd fusco radiatâ, striis longitudinalibus crebris; limbo crenulato; apice acuto, subrecurvo; cyatho depresso: diam. 1, alt. $\frac{5}{7}$ poll.*

Hab. in Americâ Meridionali. (Bay of Caraccas.)

The cup of this pretty species is pressed in, as it were, on one side, and adheres to the shell not only by its *apex*, but also by a lateral seam, which scarcely reaches to the rim of the cup. The *apex* of the younger specimens, both externally and internally, is generally of a rich brown, and there can be little doubt that when first produced they are entirely of that colour.

Found in sandy mud, on dead shells, at a depth of from seven to eight fathoms.—W. J. B.

CALYPTRÆA IMBRICATA. *Cal. testâ albidd, crassâ, subconicâ, ovatâ, costis longitudinalibus et squamis transversis imbricatâ; apice subincurvo, acuto; limbo crenato; cyatho depresso: diam. 1, lat. $\frac{5}{8}$, alt. $\frac{6}{8}$ poll.*

Hab. ad Panamam.

Found on stones, in sandy mud, at a depth of from six to ten fathoms.—W. J. B.

CALYPTRÆA LIGNARIA. *Cal. testâ crassâ, fuscâ, deformi, striis corrugatâ; apice prominente subadunco, acuto, posteriore: long. $1\frac{1}{10}$, lat. $\frac{6}{8}$, alt. $\frac{7}{8}$ poll.*

Hab. in Americâ Centrali. (Real Llejos.)

The majority of individuals of this species have their shells so deformed that they set description at defiance: the comparatively well-formed shell occurs so rarely that it may be almost considered as the exception to the rule. When in this last-mentioned state, the circumference of the shell is an irregular, somewhat rounded oval, and it rises into a shape somewhat resembling the back of *Ancylus*, with the *apex* very sharp and inclining downwards. The shell in this shape is generally less corrugated than it is in deformed individuals, though some of those are comparatively smooth; but in both states the shell is striated immediately under the *apex*, and is for the most part corrugated on the other side of it.

Found under stones.

Var. *a.* Enormiter conica, cyatho valdè profundo.

This variety is often one inch and six eighths in height, and its cup nearly one inch deep, while the diameter of the shell at the aperture does not exceed one inch.

Found on shells at the Island of Chiloe, in sandy mud, at the depth of four fathoms.—W. J. B.

CALYPTRÆA TENUIS. *Cal. testâ irregulari, tenui, subdiaphanâ, creberrimè striatâ, albidd interdum fusco pallidè strigatâ: diam. 1 circ., alt. $\frac{9}{12}$ poll.*

Hab. ad Peruvîæ oras. (Samanco Bay.)

Found on living shells, in muddy sand, at a depth of nine fathoms.—W. J. B.

CALYPTRÆA HISPIDA. *Cal. testâ subovatâ, subconicâ, albâ strigis maculisque subpurpureo-fuscis variâ, striis frequentibus et spinis tubularibus erectis hispidâ; limbo crenulato; apice turbinato; cyatho subdepresso: diam. $\frac{1}{2}$, lat. $\frac{1}{7}$, alt. $\frac{3}{10}$ poll.*

Hab. ad Insulam Muerte. (Bay of Guayaquil.)

This elegant species, the circumference of whose somewhat depressed cup is free, with the exception of one part where it adheres laterally, was found on dead shells, in sandy mud, at a depth of twelve fathoms.—W. J. B.

CALYPTRÆA MACULATA. *Cal. testâ ovatâ, albidâ purpureo-fusco maculatâ, longitudinaliter rugosâ; limbo serrato; apice subturbinato, subincurvo: diam. $\frac{1}{2}$, lat. $\frac{1}{7}$, alt. $\frac{3}{10}$ poll.*

Hab. ad Insulam Muerte.

The external contour of this shell, more especially in the position of the subturbinated apex, much resembles that of *Ancylus*. The circumference of the cup is free, excepting at one point, where it adheres laterally throughout its length.

Found in sandy mud, on dead shells, at a depth of eleven fathoms.—W. J. B.

CALYPTRÆA SERRATA. *Cal. testâ suborbiculari, albâ subpurpureo vel fusco interdum fucatâ vel strigatâ, costis longitudinalibus prominentibus rugosis; limbo serrato; apice subturbinato; cyatho valdè depresso: diam. $\frac{1}{2}$, lat. $\frac{1}{7}$, alt. $\frac{3}{10}$ poll.*

Hab. ad Real Llejos et Muerte.

Var. testâ albâ.

Found on dead shells, in a muddy bottom, at the depth of from six to eleven fathoms.—W. J. B.

Subgenus SYPHOPATELLA, Less.?

Laminâ internâ subtrigonâ, subcirculari, latere dextro replicato.

CALYPTRÆA SORDIDA. *Cal. testâ subconicâ, sordidè luted, longitudinaliter subradiatâ; apice turbinato; cyatho depresso, subtrigono, haud profundo: diam. $\frac{1}{2}$, lat. $\frac{1}{7}$, alt. $\frac{3}{10}$ poll.*

Hab. ad Panamam.

This species, the inside and outside of which are of a sordid yellow, is generally covered externally with coral or other marine adhesions. The plate is spoon-shaped.

Found on stones, on a sandy bottom, at depth of twelve fathoms.—W. J. B.

CALYPTRÆA UNGUIS. *Cal. testâ tenui, conicâ, corrugatâ, fuscâ; apice subturbinato; cyatho depresso, subtrigono: diam. $\frac{1}{7}$, alt. $\frac{3}{10}$ poll.*

Hab. ad Valparaiso.

The plate is spoon-shaped, but not so shallow as that of *Cal. sordida*.

Found on shells, at a depth of from seven to forty-five fathoms.—W. J. B.

CALYPTRÆA LICHEN. *Cal. testâ albidâ, interdum pallidè fusco*

sparsá, subdiaphaná, subturbinatá, orbiculatá, complanatá: diam. $\frac{2}{3}$, alt. $\frac{2}{3}$ poll.

Hab. ad Insulam Muerte.

Found on dead shells, in sandy mud, at a depth of eleven fathoms.—W. J. B.

CALYPTRÆA MAMILLARIS. *Cal. testá albidá, subconicá; apice subpurpureo, mamillare*: diam. $\frac{5}{10}$, alt. $\frac{4}{10}$ poll.

Hab. ad Insulam Muerte.

This pretty species varies. It is sometimes milk white, with the mamillary apex of a brownish purple, and with the inside sometimes of that colour, sometimes white, and sometimes yellowish. In other individuals the white is mottled with purplish brown stripes and spots.

Found on dead shells, in sandy mud, at a depth of eleven fathoms.—W. J. B.

CALYPTRÆA STRIATA. *Cal. testá sordidè albá, suborbiculatá, subconicá, subturbinatá, striis longitudinalibus elevatis creberrimis corrugatá; intùs fusco-flavescente*: diam. $\frac{1}{2}$, alt. $\frac{3}{10}$ poll.

Hab. ad Valparaiso.

Found on shells in sandy mud, at a depth of from forty-five to sixty fathoms.

CALYPTRÆA CONICA. *Cal. testá conicá, fuscá albido maculatá, subturbinatá*: diam. $1\frac{1}{3}$, alt. $\frac{7}{10}$ poll.

Hab. ad Xipixapi et ad Salango.

Found attached to shells in deep water.

Subgenus CREPIPATELLA, Less.

Laminâ rotundatâ, apice laterali et subterminali.

CALYPTRÆA FOLIACEA. *Cal. testá suborbiculari, albidá, foliaceá; intùs castaneá vel albá castaneo variá*: diam. 1, alt. $\frac{3}{8}$ poll.

Hab. ad Aricam Peruvix, saxis adhærens.

This *Crepipatella*, which bears no remote resemblance to the upper valve of some of the *Chamæ* when viewed from above, was found on exposed rocks near the shore.—W. J. B.

CALYPTRÆA DORSATA. *Cal. testá subalbidá, planiusculá, costis longitudinalibus irregularibus rugosá; intùs medio fusco-violaceá*: diam. $\frac{3}{8}$, lat. $\frac{1}{2}$ poll.

Hab. ad Sanctam Elenam.

The back of this shell is not unlike the upper valve of some of the *Terebratulæ*.

Found on dead shells, in sandy mud, at a depth of six fathoms.—W. J. B.

CALYPTRÆA DILATATA, Lam., varietas intùs nigro-castanea. *Cal. testá sordidè albá castaneo strigatá; intùs nitidè nigro-castaneá; laminá albá*: diam. $1\frac{1}{8}$, lat. $1\frac{1}{8}$, alt. $\frac{1}{2}$ poll.

Hab. ad Valparaiso.

This highly coloured variety was found on exposed rocks at low water. The pure white of the plate shows to great advantage, lying above the rich back ground of the interior of the shell. In some individuals this internal colour is all but black.—W. J. B.

CALYPTRÆA STRIGATA. *Cal. testâ subcorrugatâ, sordidè rubrâ albo variâ; intùs subrufâ interdum albâ vel albâ rubro-castaneo variâ: diam. 1 poll.*

Hab. ad Valparaiso.

This varies much both in colour and shape. Some of the specimens are quite flat, and the *lamina* almost convex. An obscure subarcuate longitudinal whitish broad streak may be traced on the backs of most of them. It is not impossible that it may be a variety of *Cal. dilatata*.

Found on *Mytili* at depths varying from three to six fathoms.—W. J. B.

CALYPTRÆA ECHINUS. *Cal. testâ albidâ violaceo maculatâ, interdum fuscâ, striis longitudinalibus creberrimis spinis fornicatis horridâ; intùs flavente vel albâ: diam. $1\frac{1}{2}$, lat. $1\frac{1}{8}$, alt. $\frac{5}{8}$ poll.*

Hab. ad Peruviam. (Lobos Island.)

In old specimens the spines are almost entirely worn down, and rough *striæ* only, for the most part, remain. In this state it bears a great resemblance to the figure given of *Crepidula fornicata* in Sowerby's Genera of Shells, No. 23, f. 1.

Found under stones at low water.—W. J. B.

CALYPTRÆA HYSTRIX. *Cal. sordidè albâ vel fuscâ, complanatâ, longitudinaliter striatâ, spinis magnis fornicatis apertis seriatim dispositis; intùs albidâ, interdum castaneo maculatâ: diam. $1\frac{3}{8}$, lat. $\frac{7}{8}$, alt. $\frac{3}{8}$ poll.*

Hab. ad Peruviam. (Lobos Island.)

Approaching the last, but differing in being always more flattened, in the comparatively great size of the vaulted spines, and in the comparatively wide interval between them; still I would not be positive that they are not all varieties of *Crepidula aculeata*, Lam.—W. J. B.

CALYPTRÆA PALLIDA. *Cal. testâ sordidè albâ, ovatâ; apice prominente: diam. $\frac{7}{8}$, lat. $\frac{5}{8}$, alt. $\frac{2}{8}$ poll.*

Hab. ad Insulas Falkland dictas.

Found under stones.—W. J. B.

Subgenus CREPIDULA, Less.

Laminâ subrectâ, apice postico et submedio.

CREPIDULA UNGUIFORMIS, Lam., varietas complanato-recurva: *long. $1\frac{2}{8}$, lat. $\frac{9}{8}$ poll.*

Hab. ad Insulam Chiloen et ad Panamam.

This variety affords a good example of the powers of adaptation of the animal. The shell is either flattened or concave on the back, and recurved in consequence of its adhesion to the inside of dead shells of *Ranellæ Vexillum*, *cælata*, &c.

It was dredged from sandy mud, at a depth ranging from four to ten fathoms.—W. J. B.

CALYPTRÆA LESSONII. *Cal. testâ complanatâ, subconcentricè foliaceâ, foliis tenuibus, albâ fusco longitudinaliter strigatâ; intùs albidâ; limbo interno interdum fusco ciliato-strigato: long. $1\frac{3}{8}$, lat. $1\frac{1}{8}$, alt. $\frac{2}{8}$ poll.*

Hab. in sinu Guayaquil. (Isle of Muerte.)

This beautiful species, which I have named in honour of M. Lesson, was found under stones at low water. It will remind the observer of the upper valves of some of the *Chamæ*.—W. J. B.

CALYPTRÆA INCURVA. *Cal. testâ fusco nigricante, tortuosâ, corrugatâ; intûs nigricante, septo albo; apice adunco: long. $\frac{6}{8}$, lat. $\frac{1}{2}$, alt. $\frac{3}{8}$ poll.*

Hab. ad Sanctam Elenam et ad Xipixapi.

Found on dead shells dredged from sandy mud, at a depth ranging from six to ten fathoms.—W. J. B.

CALYPTRÆA EXCAVATA. *Cal. testâ crassiusculâ, subtortuosâ, lævi, albidâ vel subflavâ fusco punctatâ et strigatâ; intûs albâ vel albâ fusco fucatâ, limbo interdum fusco ciliato-strigato: long. $1\frac{1}{2}$, lat. $1\frac{1}{2}$, alt. $\frac{5}{8}$ poll.*

Hab. ad Real Llejos.

This species is remarkable for the depth of the internal margin before it reaches the *septum*. In *Crepidula adunca*, Sow., this depth is even greater than it is in *Crep. excavata*. The *apex* is close to the margin, and obliquely turned towards the right side.—W. J. B.

CALYPTRÆA ARENATA. *Cal. testâ subovatâ, albidâ rubro-fusco creberrimè punctatâ; intûs subrubrâ vel albidâ subrubro maculatâ, septo albo: long. $1\frac{1}{2}$, lat. $\frac{7}{8}$, alt. $1\frac{1}{8}$ poll.*

Hab. ad Sanctam Elenam.

This approaches *Crep. porcellana*. The *septum* is somewhat distant from the margin, and the *apex*, which is also somewhat distant from it, is obtuse and obliquely turned towards the right side.

From sandy mud, on shells, at a depth ranging from six to eight fathoms.—W. J. B.

CALYPTRÆA MARGINALIS. *Cal. testâ subovatâ, sublævi vel vix corrugatâ, subflavâ vel albidâ fusco strigatâ; intûs nigricante vel flavâ fusco strigatâ, septo albo: long. $1\frac{1}{2}$, lat. $1\frac{1}{2}$, alt. $1\frac{1}{2}$ poll.*

Hab. ad Panamam et ad Insulam Muerte.

This species was found on stones and shells, in sandy mud, at a depth ranging from six to ten fathoms. The white *septum* shows beautifully against the black-brown of the interior. The *apex* is almost lost in the margin, and is directed towards the right side.—W. J. B.

CALYPTRÆA SQUAMA. *Cal. testâ suborbiculari, complanatâ, sublævi, subtenui, pallidè flavâ vel albidâ fusco substrigatâ; intûs subflavâ vel subflavâ fusco strigatâ: long. 1, lat. $1\frac{1}{2}$, alt. $1\frac{1}{2}$ poll.*

Hab. ad Panamam.

The *apex* of this very flat species is lost in the margin. Found under stones.—W. J. B.

May 27, 1834.

William Yarrell, Esq., in the Chair.

A Letter was read, addressed to the Secretary by Sir R. Ker Porter, Corr. Memb. Z. S., dated City of Caracas, April 7, 1834. It related chiefly to a *Monkey*, and to some *Tortoises*, recently presented to the Society by the writer.

The *Monkey* is described in detail. It is the *Pithecia sagulata*, the *jacketed Monkey* or *Simia sagulata* of Dr. Traill. Sir R. Ker Porter points out the several differences in colouring which exist between this individual and the published description by the Baron Humboldt of the *Pithecia Chiropotes*: these consist chiefly in the comparative paleness of its back, and the greater darkness of the remainder of its body and of its bushy beard. He adds that the animal drinks frequently, always bending down on its hands, and putting its mouth to the surface of the water, heedless apparently of wetting its beard, and indifferent to the observations of lookers-on: he never saw it take up water in the hollow of its hand, and carry it in this manner to its mouth in order to drink. Its favourite fruit is the apple; and it does not refuse the pinion of a roasted chicken. Its voice is a weak and chirping whistle, which becomes shrill and loud when the animal is angry. It was obtained from the vicinity of the Orinoco, not far distant from the Rio Negro, in the heart of Guiana. It is known as the *Mono Capuchino*.

The *Tortoises* are referable to the *Testudo carbonaria*, Spix.

The Secretary announced that there had recently been added to the Menagerie a *white-crested Cockatoo*, *Ptyctolophus cristatus*, Vieill.; and a pair of the *blue Jay*, *Garrulus cristatus*, Cuv.

He also stated that there had been acquired for the Menagerie a *Rhinoceros* of the *one-horned* species of Continental India. It is said to be about four years old. Its height at the loins, the highest part of the back, is 4 feet 10 $\frac{1}{2}$ inches; its length, from the root of the tail to the tip of the nose, measured in a straight line, is 10 feet 6 inches; its weight is about 26 cwt.

A specimen was exhibited of the young of the *Sandwich Island Goose*, *Bernicla Sandvicensis*, Vig., which was hatched at Knowsley. It was accompanied by the following note from the President, Lord Stanley.

“Through the kindness of John Reeves, Esq., I received at Knowsley a pair of these birds on the 15th of February, 1834.

They did not at first, when turned out on the pond among the other water-fowl, appear to take much notice of each other ; but some workmen being at the time employed about the pond, one of the birds (I think, from recollection, it was the male,) seemed to have formed some sort of attachment to one of the men working. Whenever he was present the goose was always near to him, and whenever absent at his dinner, or when otherwise employed, the bird appeared restless, and gave vent to its solicitude by frequent cries, which as well as the anxiety, always ceased with the reappearance of the workman.

“The man having frequently occasion to pass through a door, which was obliged to be kept open, it was feared that the attachment of the animal might lead to its following its friend, and that on its exit, it might fall in with and be worried or stolen by vermin, and in consequence the pair of geese were confined in one of the divisions adjacent to, but divided from, the pond, on February 26.

“Within this small inclosure, in the sheltered half of it, in one corner, stood a small hutch, in which the female on the 5th of March laid her first egg. Till within a few days of that period no alteration took place in their manners, but it then became obvious that the male was jealous of intruders, and would run at and seize them by the trowsers, giving pretty sharp blows with his wings ; but this always ceased if he observed that the female was at some distance, when he would instantly rejoin her : his return to the female was always accompanied by great hurry and clamour, and much gesticulation up and down of his head, but not of the wings. Three other eggs followed on the 7th, 9th, and 11th of March. The eggs were white, and very large in proportion to the size of the bird, being, I should imagine, (for, having no proper scales at hand, I did not weigh or subtract any of them, hoping that more might be laid,) fully equal to those of the *Swan Goose* or *Anas cygnoides*. The goose also surprised us by the rapidity of her operations, for we were hardly aware of the fourth egg having been laid that morning, when it was evident that she had begun to sit. During the whole period of incubation there could not be a more attentive nurse, and indeed she could not well help it, for the male, if she seemed inclined to stay out longer than he thought right, appeared, by his motions, to be bent on driving her back, nor was he satisfied till he had accomplished his object, when he again resumed his usual position, with his body half in half out of the hutch and his head towards the female ; but if any person crossed the yard of the division, he would immediately hurry after the intruder, though, if he found there was no intention of molesting the nursery, he seemed generally satisfied, and did not like to quit the sheltered part of the division. At night he constantly made room for himself by the female, the result of which was unfortunate towards the progeny.

“On the 12th of April the eggs began to chip, and on the 13th two goslings were excluded ; but it was found that the mother had pushed from under her the other two eggs, which were consequently taken away and put under a hen, though, as one was very nearly

cold, little hopes of any success with that were entertained, and it was in fact never hatched, but probably died in consequence of the removal by the goose at an important moment. On the morning of the 14th it was ascertained that she or the male, who always now sat close beside her in the box, had killed one of the two she had at first hatched, for it was found dead and perfectly flat. The fourth egg, which was put under the hen, was assisted out of the shell, and appeared weakly from the first, and as its mother had lost one, we put it to her, in hopes it would do better than with its nurse. She took to it at first very well; but subsequently, both the parents beating it, it was returned to, and well cared for, apparently, by its nurse, but died on the 20th, having received some injury in one eye, either from the old ones, or perhaps from the hen scratching, and thereby hitting it. The remaining gosling is doing very well, and appears strong and lively, and the parents are extremely attentive to it; and I have little doubt but these birds may easily be established, (with a little care and attention,) and form an interesting addition to the stock of British domesticated fowls.

“In its general appearance, and its Quaker-like simplicity of plumage, it seems to approximate most to the family of the *Bernacles*; but it appears to have almost as little (if as much) partiality for the water as the *Cereopsis*.”

The bird in question was named by Mr. Vigors at the Meeting of the Society on June 11, 1833. It may be characterized as follows:

BERNICLA SANDVICENSIS. *Bern. brunneo-nigrescens, subtus marginibusque plumarum pallidioribus; collo albescenti; gula, facie, capite supernè, linedque longitudinali nuchali nigris; crisso albo.*

Long. tot. 24 unc.; rostri, rictus, $1\frac{1}{2}$; alæ, $13\frac{3}{4}$; caudæ, 5; tarsi, $2\frac{7}{8}$.

Hab. in insulis Sandvicensibus, et in Owhyhee.

Mr. Owen read a Paper “On the young of the *Ornithorhynchus paradoxus*, Blum.” It was illustrated by drawings of the young animal and of various details of its structure, both external and internal, derived chiefly from the examination of the individual recently presented to the Society by Dr. Weatherhead: this individual was exhibited, as was also a smaller specimen, forming part of Dr. Weatherhead’s collection.

The circumstances which first attract attention in these singular objects are the total absence of hair; the soft and flexible condition of the mandibles; and the shortness of these parts in proportion to their breadth as compared with the adult. The tongue, which in the adult is lodged far back in the mouth, advances in the young animal close to the end of the lower mandible, and its breadth is only one line less in an individual four inches in length than it is in fully grown animals; a disproportionate development which is plainly indicative of the importance of the organ to the young *Ornithorhynchus* both in receiving and swallowing its food.

On the middle line of the upper mandible, and a little anterior to the nostrils, there is a minute fleshy eminence lodged in a slight de-

pression. In the smaller specimen this is surrounded by a discontinuous margin of the *epidermis*, with which substance, therefore,—and, probably, from its having been shed, of a thickened or horny consistence,—the caruncle had been covered. It is a structure of which the upper mandible of the adult presents no trace, and Mr. Owen regards it as analogous to the fœtal peculiarity of the horny knob on the upper mandible of the *Bird*. He does not, however, conceive that this remarkable example of the affinity of *Ornithorhynchus* to the feathered class is necessarily indicative of its having been applied, under the same circumstances, to overcome a resistance of precisely the same character as that for which it is designed in the young bird, since all the known history of the *ovum* of *Ornithorhynchus* points strongly to its ovoviviparous development.

The situation of the eyes is indicated by the convergence of a few wrinkles to one point; but the integument is continuous, and completely shrouds the eyeball. In the absence of vision in the young animal, strong evidence is afforded of its being confined to the nest, there to receive its nourishment from its dam; and this deduction is corroborated by the cartilaginous condition of the bones of the extremities, and by the general form of the body: the head and tail are closely approximated on the ventral aspect, requiring force to pull the body into a straight line; and the relative quantity of integument on the back and belly shows that the position necessary for progressive motion is unnatural at this stage of growth.

Mr. Owen describes other external appearances of the young *Ornithorhynchus*, and then enters at considerable length into its anatomy. The stomach is nearly as large in an individual four inches in length as in the adult animal. In this specimen it was found filled with coagulated milk, and no trace was visible, on the most careful examination, of worms or bread, on which, up to the time of his discovery of the mammary secretion, Lieut. the Hon. Lauderdale Maule had believed that this individual had been sustained. A portion of this coagulated substance was diluted with water, and examined under a high magnifying power in comparison with a portion of cow's milk coagulated by spirit, and similarly diluted. The ultimate globules of the *Ornithorhynchus's* milk were most distinctly perceptible, detaching themselves from the small coherent masses to form new groups: the corresponding globules of the cow's milk were of larger size. Minute transparent globules of oil were intermixed with the milk globules of the *Ornithorhynchus*. A drop of water being added to a little mucus, it instantly became opaque; and its minutest divisions, under the microscope, were into transparent angular flakes, entirely different from the regularly formed granules of the milk of the *Ornithorhynchus*.

In passing in review the several *viscera* of the young *Ornithorhynchus*, Mr. Owen observed on various physiological deductions which might be drawn from them, and on the differences and resemblances borne by them to the same organs in the ordinary viviparous *Mammalia* and in the *Marsupialia*.

June 10, 1834.

Richard Owen, Esq., in the Chair.

A collection of objects of Zoology, made by Lieut. Allen, R.N., Corr. Memb. Z. S., during his late expedition up the Quorra into the interior of Africa, and presented by him to the Society, was exhibited. It was accompanied by another collection formed by the same gentleman at Fernando Po. They comprehended a previously undescribed species of *Plover*; an undescribed *Tetrodon* and a *Myletes*; specimens of *Polypterus Senegalus*, Cuv., and of a *Gymnarchus*, Ej.; and specimens of the *three-horned Chamæleon*, *Chamæleo Oweni*, Gray, and of a *Galago*, *Galago Senegalensis*, Geoff.; the two latter being from Fernando Po. They also included numerous *Insects* and *Arachnida*, both from the interior and from the island.

The bird was characterized by Mr. Gould:

VANELLUS ALBICEPS. *Van. capite, gulâ, alis in medio, uropygio, ventre, crissoque albis; faciei lateribus colloque purpurascenticinereis; scapularibus, remigibus prioribus tribus, caudæque dimidio apicali nigris.*

Long. tot. a rostri ad caudæ apicem, 13 unc., a rostri ad digitorum apicem, 15 unc.; *alæ*, 8; *caudæ*, 4; *tarsi*, 3; *femoris*, 3; *rostri*, a rictu ad apicem, 1½.

Rostrum viridi-aurantiacum, ad apicem nigrum.

Between the eye and the upper mandible is situated a fleshy substance (resembling that of the *common Cock*) which hangs down at right angles with the beak; it is of an orange colour, and is narrow in form, being one inch and a half long and half an inch wide at the base, whence it gradually tapers throughout its whole length to the tip. The spur on the shoulders is strong and sharp, and is nearly an inch in length.

The *Fishes* were characterized by Mr. Bennett, who remarked on the complete analogy borne by these species of the rivers of Western Africa to some of those of the Nile. The form of *Myletes*, Cuv., to which Lieut. Allen's fish belongs, has hitherto been obtained only in Egypt; the genus *Polypterus*, Geoff., originally observed in the Nile, seems to be limited to that river and to Senegal; the genus *Gymnarchus*, Cuv., has previously been noticed only in the Nile; and the *Tetrodon* of this collection resembles in its markings that of Egypt. The new species may be thus characterized:

MYLETES ALLENII. *Myl. oblongus; pinna dorsali primâ supra ventrales positâ.*

D. 10, O. A. 14. C. 19. P. 15. V. 9.

Specimen minimum, biunciale, a *Myl. Hasselquistii*, Cuv., (*Salmo Dentex*, Hass.,) differre videtur situ pinnæ dorsalis primæ.

No. XVIII.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

TETRODON STRIGOSUS. *Tetr. dorso hispido, nigrescente; ventre lateribusque lævibus, his albo nigroque longitudinaliter lineatis, illo albo: pinnâ caudali quadratâ; pectoralibus latè rotundatis.*
D. 12. A. 9. P. 19. C. 8.

Tetr. lineato, Linn., (*Tetr. Physa*, Geoff.), analogus videtur. Differt maximè ventre lateribusque haud armatis.

The exhibition was resumed of the new species of *Shells* collected by Mr. Cuming on the western coast of South America and among the islands of the South Pacific Ocean. Those brought on the present evening under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby. They belonged to the

Genus PETRICOLA.

PETRICOLA ELLIPTICA. *Pet. testâ ovato-ellipticâ, rufescenti-albidâ; radiatim costatâ, posticè lævi; lamellis concentricis sparsis; lunulâ anticâ distinctâ: long. 1.2, lat. 0.7, alt. 0.9 poll.*

Hab. ad Paytam.

Found in hard mud at low water.—G. B. S.

PETRICOLA OBLONGA. *Pet. testâ oblongo-ellipticâ, pallescente; radiatim costellatâ; lineâ dorsali posticâ rectiusculâ; lamellis concentricis pluribus, posticè lævigatis: long. 0.9, lat. 0.5, alt. 0.7 poll.*

Hab. ad oras Peruvix. (Pacosmayo.)

Found in hard mud at low water.—G. B. S.

PETRICOLA SOLIDA. *Pet. testâ subgloboso-ellipticâ, pallescente, umbonibus extremitatibusque ambabus fusco-violaceis; radiatim costatâ, posticè lævigatâ; lineis incrementi nonnunquam sublamellosis, posticè magis eminentibus: long. 1.3, lat. 0.8, alt. 1.0 poll.*

Hab. ad oras Peruvix. (Lambeyeque.)

Found in hard clay and stones at low water.—G. B. S.

PETRICOLA DISCORS. *Pet. testâ oblongo-ellipticâ, brunnescente; radiatim costellatâ, costellis acutis, posticè lævi; lineâ dorsali rectâ: long. 0.8, lat. 0.3, alt. 0.55 poll.*

Hab. ad littora Peruvix. (Lambeyeque.)

Found in hard clay.—G. B. S.

PETRICOLA CONCINNA. *Pet. testâ oblongâ, pholadiformi, albicante; concentricè costellatâ; anticè rotundatâ, radiatim sulcatâ; dorso declivi, alterius valvæ lamellâ lævigatâ; posticè acuminatusculâ, cotesillis concentricis lamellosis, confertis: long. 0.8, lat. 0.35, alt. 0.35 poll.*

Hab. ad Montem Christi.

Only one perfect pair and a single valve could be preserved.

Found in hard clay at low water.—G. B. S.

PETRICOLA DENTICULATA. *Pet. testâ oblongâ, pholadiformi, extûs pallescente, intûs ad extremitates fusco-nigricante tinctâ; anticè subrostratâ, posticè rotundatâ; lineâ dorsali rectiuscula,*

ventrali subprominuld; omnind radiatim sulcatd et concentricè striatd, striis anticè sublamellosis denticulatis: long. 1.3, lat. 0.6, alt. 0.6 poll.

Hab. ad Paytam Peruviz.

Found in hard clay and stones at low water.—G. B. S.

Var. *abbreviata. Testd brevior, striis sublamellosis denticulatis nullis: long. 1.1, lat. 0.6, alt. 0.6 poll.*

Hab. ad Insulam Platæ.

Found in stones at low water.—G. B. S.

PETRICOLA RUGOSA. *Pet. testd oblongd, pholadiformi, albicante; radiatim costellatd, tenuissimè concentricè striatd; marginibus plerumque deformibus: long. 1.4, lat. 0.55, alt. 0.7 poll.*

Hab. ad oras Chilenses. (Conception.)

Found in *Balani* at from three to seven fathoms depth.—G. B. S.

PETRICOLA TENUIS. *Pet. testd oblongd, pholadiformi, tenui, albicante; radiatim costellatd, costellis anticis posticisque fortioribus, omnibus striis exilissimis rugulosis decussatis; latere antico brevissimo: long. 1., lat. 0.5, alt. 0.55 poll.*

Hab. ad littora Peruviz. (Lambeyeque & Pacosmayo.)

Found in hard clay at low water.—G. B. S.

PETRICOLA ROBUSTA. *Pet. testd rotundato-subtrigond, subgibbosd, solidiusculd, extùs rufescente-fuscá, intùs nigricante; radiatim costatd, costis anticis tenuioribus confertioribus, posticis altioribus; interstitiis omnibus exilissimè decussatim striatis; latere antico rotundato, postico subacuminato; margine dorsali declivi: long. 1.2, lat. 0.8, alt. 0.9 poll.*

Hab. ad Panamam et ad Insulam Muerte dictam.

Found in rocks at the depth of from six to eleven fathoms.—G. B. S.

PETRICOLA AMYGDALINA. *Pet. testd tenui, subhyalind, flavescente, obovatd, lævi; latere antico brevissimo, angustiore; postico longiore, altiore, lamellis nonnullis elevatis distantibus ornato: long. 1.3, lat. 0.5, alt. 0.8 poll.*

Hab. ad Insulas Gallapagos.

Found in *Mother-of-Pearl Shells* in from three to six fathoms at Lord Hood's Island.—G. B. S.

The following "Description of a new Genus of *Gasteropoda*, by W. J. Broderip, Esq., Vice President of the Geological and Zoological Societies, F.R.S., &c." was read.

SCUTELLA.

Testa Ancyliformis, intùs nitens. Apex posticus, medius, involutus. Impressiones musculares duæ, oblongo-ovatae, laterales. Apertura magna, ovata.

Animal marinum.

This genus appears to be intermediate between *Ancylus* and *Patella*, while the aspect of the back sometimes reminds the observer of *Navicella* or *Crepidula*, Lam. Its place will most probably be among the *Cyclobranches* of Cuvier.

The two muscular impressions are situated on each side of the interior a little below the summit; while, in *Patella*, they nearly surround the internal circumference of the same part of the shell. The aperture is generally surrounded by a margin, and the *apex*, which in *Ancylus* is oblique, is central though posterior.

Mr. Cuming brought home the following species which I now proceed to describe.

SCUTELLA CRENULATA. *Scut. testâ subconicâ, cancellatâ, striis ab apice radiantibus exasperatis, albâ; intûs nitente; annulo marginali et margine crenulatis: long. $\frac{9}{8}$, lat. $\frac{5}{8}$, alt. $\frac{1}{17}$ poll.*

Hab. ad insulam Anään (Chain Island).

This shell was found dead on coral sand on the beach of the island at a distance from any fresh water.

The marginal ring is very strongly developed, and the margin itself is not even; for when the shell is placed with the aperture downwards on a flat surface, it rests on the two ends, the sides of the margin forming each a low arch.

SCUTELLA IRIDESCENS. *Scut. testâ oblongo-ovatâ, complanatâ, minutissimè substriatâ, albo et roseo guttatim tessellatâ; intûs iridescente, margine interno albo, roseo maculato: long. $\frac{3}{10}$, lat. $\frac{1}{17}$, alt. $\frac{1}{17}$ poll.*

Hab. in Oceano Pacifico. (Grimwood's Island.)

This species was gathered by Mr. Cuming on the sands when the tide was out. There was no fresh water near, and though he obtained several individuals in the finest condition, the soft parts were gone, having evidently but lately fallen a prey to some carnivorous creature.

The shape of *Scut. iridescens* is very elegant, and the silvery iridescent nacre which lines the inside of the shell, contrasted as it is with the less brilliant but lively coloured margin, is almost dazzling. The back of the shell, which is very brittle, is mottled with white and rose colour. This disposition of its markings almost conveys the impression that the surface of the back is uneven; but with the exception of the very minute *striæ*, which are almost imperceptible, it is smooth.

SCUTELLA ROSEA. *Scut. testâ subconicâ, striatâ, albâ, lineis flammulisque roseis ornatâ; intûs nitente, interdum subiridescente: long. $\frac{1}{8}$, lat. $\frac{1}{17}$, alt. $\frac{1}{17}$ poll.*

OBS. Varietas forsân præcedentis.

Hab. cum præcedente.

The shape and many other points in this shell differ from those of *Scut. iridescens*. Externally it is much more conical and the *striæ* which run from the *apex* to the interior margin are direct and minute, while those which are lateral are much coarser and cross the somewhat elevated white parts obliquely: in *Scut. iridescens*, the exceedingly minute *striæ* radiate evenly from the *apex*. In *Scut. rosea* we lose the brilliancy of the internal nacre which distinguishes *Scut. iridescens*, and, in some individuals, it is entirely absent. Still the

former may only be a variety of the latter: both were found together.—W. J. B.

The *Shells* described in this communication were exhibited.

A note by Mr. G. Bennett, Corr. Memb. Z.S., was read. It gave an account of a *Pelican* now living in the grounds of Mr. Rawson at Dulwich, which wounded itself just above the breast to such an extent as to expose a spacious cavity. The bandages applied to the part were repeatedly torn off by the bird for the space of ten days, at the expiration of which the wound was healed. During the whole of the time the bird was in perfect health; eating fish and drinking as usual. The scar of the wound is still readily observable.

June 24, 1834.

Joseph Sabine, Esq., Vice President, in the Chair.

A letter was read, addressed to the Secretary by Keith E. Abbott, Esq., and dated Trebizond, Dec. 10, 1833. It referred principally to a collection of objects of Zoology formed by the writer in his neighbourhood and presented by him to the Society; and contained notices of other objects which he expects to be able to procure and transmit.

It also gave some account of "the famous honey of Trebizond, which is spoken of by Xenophon in his history of the retreat of the ten thousand Greeks, as having produced the effect of temporary madness or rather drunkenness on the whole of the army who ate of it, without, however, causing any serious consequences. It is supposed to be from the flowers of the *Azalea Pontica* that the *Bees* extract this honey, that plant growing in abundance in this part of the country, and its blossom emitting the most exquisite odour. The effect which it has on those who eat it is, as I have myself witnessed, precisely that which Xenophon describes: when taken in a small quantity it causes violent head-ache and vomiting, and the unhappy individual who has swallowed it resembles as much as possible a tipsy man; a larger dose will completely deprive him of all sense and power of moving for some hours afterwards." A portion of the honey accompanied the letter, and was exhibited.

The other objects presented by Mr. Keith Abbott were also exhibited.

At the request of the Chairman, Mr. Gould brought the *Birds* severally under the notice of the Meeting. Their principal interest rested on the assistance afforded by a collection formed in such a locality towards the determination of the geographical limits of certain species. Those among the *Birds* of Europe which are found in India also would, it is reasonable to anticipate, occur in the intermediate locality of Trebizond; but there are, among the Trebizond *Birds*, various European species which do not, as far as is yet known, occur in India, and the existence of which in so eastern a range is consequently interesting.

The following species are contained in the Trebizond collection presented to the Society by Mr. Keith Abbott. The remarks as to the localities inhabited by them respectively are by Mr. Gould.

1. *Aquila pennata*. Inhabiting eastern Europe and the adjacent parts of Asia and Africa.

2. *Buteo vulgaris*, Bechst. European; but not previously observed in Asia, although there is a nearly allied species in the Himalayan mountains. It has not yet been noticed in Africa.

3. *Circus aruginosus*. European, Indian, and African.

4. *Circus cyaneus*. European, African, Indian, Chinese, and North American specimens present no apparent specific differences.

5. *Circus cineraceus*. European, Indian, and African.
6. *Coracias garrula*, Linn. Inhabiting Europe, and abundantly Northern Africa; but hitherto not observed in India.
7. *Lanius Collurio*, Linn. Hitherto not obtained from India.
8. *Cinclus aquaticus*, Bechst. Hitherto not obtained from any locality so far to the east as Trebizond.
9. *Saxicola Œnanthe*, Bechst. Similarly circumstanced with the last.
10. *Parus major*, Linn. Also similarly circumstanced.
11. *Parus biarmicus*, Linn. European, and of Eastern Asia; but hitherto not observed in India.
12. *Pyrgita domestica*, Cuv. European, and obtained also from the Nubian mountains, as well as from the Himalayan and from other parts of India.
13. *Carduelis communis*, Cuv. Not hitherto observed in India.
14. *Emberiza miliaria*, Linn. Previously not obtained from any locality so far to the east as Trebizond.
15. *Sturnus vulgaris*, Linn. Common to the three continents of the old world.
16. *Troglodytes communis*, Cuv. Not hitherto observed in India.
17. *Tichodroma muraria*, Ill. Inhabiting the South of Europe, and found also in the Himalayan mountains, but not in the low lands of India.
18. *Otis Tetrax*, Linn. Inhabiting Europe and Africa, but not India.
19. *Œdicnemus crepitans*, Cuv. Similarly circumstanced with the last.
20. *Vanellus* ——— ? A young bird of a species apparently undescribed.
21. *Tringa variabilis*, Meyer. European and American; but hitherto not observed in India or Africa.
22. *Tringa pugnax*, Linn. European and Chinese.
23. *Totanus Glottis*, Bechst. Not hitherto observed in India or Africa.
24. *Botaurus stellaris*. Inhabiting the three continents of the old world.
25. *Sterna Hirundo*, Linn. Inhabiting Europe and America, but not observed in India.
26. *Sterna leucoptera*, Temm. Hitherto not observed out of Europe.
27. *Tadorna Vulpanser*. Similarly circumstanced with the preceding.
28. *Anas Boschas*, Linn. Almost universal.
- Mr. Keith Abbott states that in addition to the above-named birds he has shot at Trebizond the following :
- Falco rufipes*, Bechst.
- Oriolus Galbula*, Linn.
- Pastor roseus*, Temm.
- Pterocles arenarius*, Temm.
- Totanus Calidris*, Bechst.

Totanus ochropus, Temm.

Anus rutila, Pall.

At the request of the Chairman Capt. Stoddart exhibited, with the permission of the Committee of the Naval and Military Museum, three *Birds* forming part of that collection. These were the *Columba spiloptera*, Vig.; the *Tetraogallus Nigellii*, Gray; and a new species of *Numida*, Linn., remarkable for the nakedness of the head and of the greater part of the neck; for the possession of long hackled feathers round the base of the neck and on the breast; and for the absence of caruncle on the head. The latter bird was accompanied by a detailed description by Major-General Hardwicke, which was read. In it the author pointed out the distinctive characters between this new species and the several previously described birds of the genus *Numida*. It may be characterized as follows :

NUMIDA VULTURINA. *Num. capite haud cristato collique parte anteriore nudis, occipite tantùm brunneo-plumoso; colli inferioris pectorisque plumis elongatis, lanceolatis, ceruleo nigroque variis, vittâ albâ medianâ notatis; brunneo-nigra, albo guttata, fasciata, et lineata.*

Long. a rostri ad caudæ apicem, 18 unc.; ad digiti medii apicem, 24; rostri, 2 unc.

Rostrum brunneo-rubrum.

The specimen was brought by Capt. Probyn from the Western Coast of Africa. From the injured condition of the tail- and wing-feathers it is evident that it had been kept in confinement, and it has the appearance of having been under the influence of moulting when it died.

Mr. Sabine called the attention of the Meeting to a specimen of a hybrid *Bird* between the common *Pheasant*, *Phasianus Colchicus*, Linn., and the *grey hen*, *Tetrao Tetrix*, Linn., which was exhibited. Its legs were partially feathered; it bore, on the shoulder, a white spot; and its middle tail-feathers were lengthened. Mr. Sabine stated his intention of entering at some length into the history of hybrid and cross animals in connexion with his description of this bird. It was bred in Cornwall.

A specimen was exhibited of a *Bat* captured in New Holland by George Bennett, Esq., Corr. Memb. Z. S. It was brought under the notice of the Meeting by Mr. Gray, who regarded it as previously undescribed. He characterized it as

RHINOLOPHUS MEGAPHYLLUS. *Rhin. prosthemate posteriore ovato-lanceolato, faciem latitudine subæquante; pallidè murinus; partibus subnudis pilis parvis albis subtus prope corpus instructis.*

Long. humeri, $12\frac{1}{2}$ lin.; ulnæ, $22\frac{1}{2}$; pollicis cum ungue, 4; tibiæ, 9; pedis, 5; calcaris, 5; caudæ, 12.

Hab. in Novâ Hollandiâ, in cavernis prope fluvium Moorumbidjee dictum.

“The hinder nose-leaf is bristly, ovate-lanceolate, nearly as broad at the base as the face, with a rather produced tip; the *septum* of the nose is grooved; and the front leaf expanded with a quite free membranaceous edge. The head is elongated; the face depressed; the muzzle rounded; the ears are large, reaching when bent down rather beyond the tip of the nose. The fur is soft and of a pale mouse colour. The membranes are dark and naked, with rather distant whitish hair on the under side near the sides of the body.

“This *Bat* is very nearly allied to the true European *Rhinolophi*, and agrees with them in having four cells at the base of the hinder nose-leaf, and distant pectoral teats. It differs from them in having a much broader nose-leaf. The pits on the nose and the distant teats are not found in the other *Rhinolophi*, which have no hinder nose-leaf. These I propose to separate from the others under the name of *Hipposiderus*.”

Mr. Gray also exhibited specimens of several *fresh-water Tortoises*.

Of these he had recently received three from John Russel Reeves, Esq., of Canton, two of which he regarded as being previously undescribed. These he now characterized as follows :

EMYS NIGRICANS. *Em. testâ obovato-oblongâ, convexâ, nigro-fusca; subtricarinatâ, carinâ medianâ obtusâ posticè continuâ, lateralibus indistinctis distantibus; scutellis obscurè radiatis, vertebralibus latis, anterioribus pentagonis; marginibus revolutis, posticâ subserratâ; infrâ ad latera luteo maculatâ; sternum subconvexum, luteum, nigro variegatum.*

Long. *testæ*, 3 poll.

Hab. in Chinâ prope Canton.

This species is nearly allied in shape and colour to *Em. crassicollis*, Bell, but differs by the distance and indistinctness of its lateral keels, the convexity of its *sternum*, and the shape of its anterior vertebral plates. From *Em. Thurjii*, Gray, it is distinguished by its smaller size, the darkness of its colour, and the yellow spotting on the under side towards the edge of the shell.

The character is taken from a half-grown shell, from which the animal had been removed.

EMYS SINENSIS. *Em. testâ ovatâ, convexâ, subcarinatâ, olivaceâ nigro punctatâ; scutellis lævibus, luteo strigatis, vertebralibus latis hexagonis; marginibus integris, lateralibus subrevolutis; subtus luteâ, maculis oblongis olivaceis nigro marginatis ornatâ; sterni lateribus subcarinatis: collo lineis tenuissimis flavis notato.*

Long. *testæ*, 5 poll.

Hab. in Chinâ.

Allied to *Em. vulgaris*, Gray, but easily distinguished by the orange streaks in the centre of each discal shield. The under side of each of the marginal plates is marked near its hinder edge by a large oblong subquadrate olive spot, which is dotted and margined with black; the axillary and inguinal plates are marked with a black ring. The sternal plates are varied with brown.

A third undescribed species of *Emys*, of which a specimen was ex-

hibited by Mr. Gray, was brought from Dukhun by Lieut. Col. Sykes. It was characterized as the

EMYS TENTORIA. *Em. testâ ovato-oblongâ, olivaced; dorso subangulariter compresso; scutellis subrugosis, vertebraliû primo quadrato, reliquis elongato-hexagonis carinatis posticè productis (tertio præcipue) tuberculatis, marginalibus sternalibusque flavo carinatis; sterno subplano parum elevato.*

Hab. in Indiæ Orientalis regione Dukhun dictâ.

A fourth new species characterized by Mr. Gray was the

EMYS PLATYNOTA. *Em. testâ ovatâ, convexâ, fuscâ; dorso complanato; scutellorum vertebraliû primo lato hexagono; margine subintegro; sterno plano; capite luteo variegato.*

Hab. in Indiâ Orientali.

Long. testæ, 9 poll.

The shell differs at first sight from all the other species of the genus by the flatness of the middle of the back, agreeing in that character with *Hydraspis planiceps*, Bell.

Mr. Gray also exhibited a specimen of the *fresh-water Tortoise* which he had described in his 'Synopsis Reptilium,' under the name of *Cistuda Bealii*, from a drawing communicated to him by Mr. Reeves. The examination of the specimen subsequently received from Mr. Reeves has enabled him to ascertain that it is really an *Emys*, which is easily distinguishable from all the other known species of that genus by the possession of two eye-like spots on each side of the nape: the shell is in form like that of *Em. vulgaris*, Gray; its colour is dull olive, speckled with black as in *Cistuda Europæa*, Gray. The name of the species will now necessarily be changed to *Emys Bealii*.

With these *Terrapins* Mr. Reeves had also transmitted to Mr. Gray three specimens of *Cistuda Amboinensis*, Gray, two of which, differing very much from each other and from the typical species in external form, were exhibited.

The first is extremely heavy and solid, with a very high back. It appears to have belonged to an old animal, as the plates are worn nearly smooth; its *sternum* is solid, flat, rounded before and behind, and the gular and anal pairs of plates are each united into one, leaving only a slight groove between the gular pair, showing where the division is generally placed.

The second is very much depressed, expanded on the sides, so as to be nearly orbicular, and is as wide as it is long. This extension is chiefly produced by the length of the costal plates, for the vertebral ones are very narrow, the front one being rather longer than broad, and much narrower behind. The *sternum* is very broad, flat, rounded before, and slightly keeled behind. All the plates are separate.

Colonel Sykes exhibited several pieces of the leaden pipes used for the supply of water to his house, which were perforated by having been gnawed by *Rats*.

The following notes, by Mr. Rymer Jones, of the dissection of a

Tiger, Felis Tigris, Linn., which recently died at the Society's Gardens, were read.

The stomach was simple, 18 inches in length, and 13 in its greatest circumference. It was seated in the left hypochondriac and in the umbilical regions. The *œsophagus* entered it at 3 inches from its cardiac end. Its mucous coat exhibited beautifully minute convoluted *plicæ*, perhaps from the arrangement of the gastric glands. The pyloric valve was little distinct.

The *omentum* was loaded with fat, and extended about two thirds of the distance to the *pubes*.

The *duodenum* was loosely attached by a broad mesentery, and measured in length about 12 inches: the length of the small intestines was 18 feet; their circumference was uniform throughout, $2\frac{1}{2}$ inches. The *cæcum* was 2 inches long, and the same in circumference; its form being that which is met with in the *domestic Cat*. The length of the large intestines was 2 feet 10 inches; their circumference 4 inches. The muscular coat of the intestines was thick throughout their whole extent.

The liver, when spread out, resembled in form a vine-leaf, being divided by deep fissures reaching nearly to the hepatic vessels. It consisted of five lobes, the middle one of which was the largest; this presented below a deep fissure lodging the gall-bladder, which seemed to perforate the substance of the *viscus*, its *fundus* appearing in a hole on the convex surface. The length of the gall-bladder was 3 inches; its circumference $3\frac{1}{2}$; its shape pyriform; and its neck convoluted as in the *domestic Cat*: the length of the neck, when unravelled, was $2\frac{1}{2}$ inches. The bile entered the intestine at 4 inches from the *pylorus*, in common with the pancreatic secretion.

The *pancreas* was placed between the layers of *peritoneum* which formed the mesentery of the *duodenum*. It was of a long ribband-like form; 22 inches in length; 1 inch in its greatest and $\frac{1}{4}$ ths in its least breadth.

The spleen was loosely attached to the cardiac extremity of the stomach; of a flat, club-shaped form; and measured at its broadest part 3 inches in width, at its narrowest, 1 inch: its greatest thickness was $\frac{1}{2}$ inch.

The lungs consisted of four lobes on the right and three on the left side.

The heart, of a pyramidal shape, and measuring 5 inches in length and 4 in breadth, was seated in the middle of the chest upon the *sternum*. The medium thickness of the muscular *parietes* of the right ventricle was $\frac{1}{4}$ inch, of the left ventricle, $\frac{1}{8}$ ths. There were no traces of Eustachian valve, or of valve to the coronary vein. The *venæ cavæ* were two, one superior and one inferior. The primary branches of the *aorta* were also two.

The *trachea* consisted of forty-five rings, each forming rather more than a semicircle and being completed behind by a membrane which had the appearance of being muscular. It divided inferiorly into three branches, two of which passed to the right, and one to the left lung. The vocal ligaments were little prominent, and the *sacculus laryngis* was scarcely perceptible.

The *pharynx* was very muscular. The lining membrane of the *oesophagus* was disposed, in its upper third, in longitudinal *plicæ*, and throughout the rest of its extent in transverse folds resembling thickly placed *valvulæ conniventes*, becoming more numerous and smaller towards the stomach. The tonsils were exceedingly small, consisting of three or four little glandular patches under the mucous membrane. The *apex* of the *epiglottis* was obtusely pointed, and much curled towards the tongue: the *frænum epiglottidis* contained a powerful muscle serving to raise the *epiglottis*: the aryteno-epiglottidean ligament was so studded with mucous follicles as to represent glandular masses. The *dorsum* of the tongue, 10 inches in length, was thickly studded with retroverted spines, which towards the posterior part became converted into loose, triangular, fleshy appendages attached here and there to the surface.

The supra-renal glands were imbedded in fat and situated about 1 inch internal to the anterior extremity of the kidneys; their length was $2\frac{1}{2}$ inches, their breadth 1 inch. The kidneys were 4 inches in length, $2\frac{1}{2}$ in breadth, and $2\frac{1}{3}$ in thickness. They had the ordinary position and form, and exhibited on their surface the arborescent vessels observable in the *Felidæ* and *Viverridæ* generally. Their cortical and tubular portions were beautifully distinct; the medium thickness of the former being 3 lines. One *papilla* received the *tubuli uriniferi* of the whole kidney. The ureters terminated about 1 inch from the neck of the bladder. The urinary bladder, of an oval shape and 6 inches in length, was so small that without distension it would not have contained more than three or four ounces of fluid.

The prostate gland was $\frac{3}{4}$ of an inch in diameter and $\frac{3}{8}$ ths in thickness; its form was circular, flattened from before backwards; it was placed behind the neck of the bladder, which it did not embrace. When cut into, its substance exhibited a rosy white colour. Its secretion resembled whey, and was poured into the *urethra* through several little orifices on each side of the *verumontanum*, which was a little eminence half an inch in length. The *vasa deferentia* terminated with the ducts of the prostate. Nothing analogous to *vesiculæ seminales* was observed. Cowper's glands were of the size of moderately large hazel-nuts, surrounded by a strong muscular envelope; on cutting through this case the glandular masses were found to be of the size of large peas, the remainder of the bulk being made up by the thickness of the muscular covering; their secretion was poured out by two ducts into the bulbous portion of the *urethra*. The *urethra* was $9\frac{1}{2}$ inches in length; its mucous lining presented no *lacunæ*, and was, when slit open, $\frac{5}{8}$ ths of an inch broad at the *verumontanum*, $\frac{1}{2}$ at the membranous portion, $\frac{5}{8}$ at the bulb, and about $\frac{3}{8}$ ths throughout the rest of its extent. The *penis* was $5\frac{1}{8}$ inches in length; the *glans* measuring $\frac{7}{8}$ ths of an inch and being of a conical form ending in a sharp point; its surface was studded with minute *papillæ*, but was quite smooth; it inclosed an *ossiculum* $\frac{3}{4}$ of an inch in length.

The morbid appearances observed consisted of tubercular disease of the lungs, with rupture of the air cells in several places.

July 8, 1834.

William Yarrell, Esq., in the Chair.

A Letter was read addressed to the Secretary by M. Julien Desjardins, Corr. Memb. Z.S., dated Mauritius, January 10, 1834. It accompanied a collection of objects of Zoology, consisting chiefly of *Mammalia* and *Birds*, which were exhibited to the Meeting.

Mr. Gray exhibited various undescribed *Shells*, chiefly contained in his own collection. He characterized them as follows :

UNIO NOVÆ HOLLANDIÆ. *Un. testâ oblongo-elongatâ, gracili, solidâ ; anticè subcompressâ, lævi, rotundatâ, posticè subventricosâ, productâ, tuberculis magnis inæqualibus in seriebus curvatis radiantibus dispositis ; disco argenteo purpureo maculato, margine inferiore anticè crassissimâ ; dente cardinali anteriore parvo, parùm elevato, bituberculato ; dentibus posterioribus parvis, sub cartilaginis margine posteriore positis ; periostracâ crassâ, nigrâ.*

Hab. in Novæ Hollandiæ flumine Macquarrie, 70 circiter mill. ab ejus ostio.

ANODON PARISHII. *An. testâ ovatâ, ventricosâ, solidâ ; anticè compressâ, subproductâ, subgracili, posticè expansâ, dilatâ, rotundatâ ; margine cardinali rectâ, marginis inferioris dimidium longitudine æquante ; disco margaritaceo-albo ; periostracâ brunneo-nigrescente.*

Long. $7\frac{1}{2}$, alt. $3\frac{3}{4}$ poll.

Hab. in fluviis Paraguayæ.

The submarginal scar has an acute inflection under the hinder muscular one; and there are several small unequal scars behind that of the anterior adductor, as well as others, also unequal, under the *umbones*.

ANODON PENICILLATUS. *An. testâ ovatâ, ventricosâ, crassâ, solidiusculâ, lævi ; anticè subcompressâ, rotundatâ, subgracili, posticè obliquè truncatâ ; ad marginem inferiorem posticè dilatato-rotundatâ ; disco albo, lineis angularibus brunneo-nigrescentibus prope cicatricem muscularem submarginalem notato ; periostracâ olivaceâ, lævi.*

Hab. in fluviis Paraguayæ.

The black lines of the inside of the shell are deposited along the upper edge of the submarginal muscular scar, and are gradually covered by the pearly layer deposited by the surface of the mantle over the scar; the interior ones, being the most thickly covered, are the lightest in colour.

There is a two-lobed oblong muscular scar at the back of the lower edge of that of the anterior adductor. There is also a small deep scar under the front of the *umbones*.

ANODON PORCIFER. *An. testâ ovali, subventricosa, crassa, solidâ; anticè convexâ, rotundatâ, posticè productâ, porcâ angulari prope depressionem marginis posticæ; margine inferiore posticè subrotundatâ; disco nitidissimo, iridescenti-margaritaceo; periostracâ lævi, nigrâ viridi radiatim pictâ.*

Hab. in fluviis Paraguayæ.

There is only a single small ovate scar behind the lower end of that of the anterior adductor muscle; the part under the *umbones* is destitute of any.

Mr. Gray also exhibited specimens of several *Shells*, which he referred to a genus to be separated from *Helix* under the name of

NANINA.

Helix (pars), *Fér.* *Vitrina* (pars), *Quoy.*

Animal. Collare amplum, lobo dextro antico, antro respirationis in sinu posito, lobo sinistro postico lato expanso partem inferiorem testæ anfractûs ultimi tegente. Pes posticè truncatus, processu brevi conico dorsali supra truncaturam sito.

Testa depressa, perforata, polita; aperturâ lunatâ; peristomate tenui, edentulo, costâ internâ vel nullâ vel obsoletâ.

India, China, &c. Incolæ.

The shells comprised in this genus have been referred by M. De Férussac, and by most authors, to *Helix*: they are, however, more nearly related to *Vitrina*, with which M. Quoy intends placing them. But from the shell of *Vitrina* that of *Nanina* differs by being umbilicated, as well as by its smaller mouth. The lobation of the collar of the animal of *Nanina* distinguishes it also from *Vitrina*; the collar of the latter being entire, with a linear lobe on the side extending over the shell, and with the respiratory hole placed at its base.

The animal was first observed and figured by General Hardwicke in 1797.

The following species belong to the genus:

Nan. Nemorensis. *Helix Nemorensis, Müll.*

Nan. Javanensis. *Hel. Javanensis, Fér.*

Nan. exilis. *Hel. exilis, Müll.*

Nan. citrina. *Hel. citrina, Linn.*

Var. Hel. castanea, Müll.

Hel. Rapa, Chemn.

Nan. monozonalis. *Hel. monozonalis, Lam.*

Nan. Clairvillia. *Hel. Clairvillia, Fér.*

Nan. Vitrinoides. *Hel. Vitrinoides, Desh.*

NANINA JULIANA. *Nan. testâ solidâ, albâ; spirâ convexiusculâ;*

anfractibus depressis fasciâ medianâ brunnea, ultimo anticè roseo fasciâ brunnea axin cingente; peristomate rotundato, roseo.

Axis 11, diam. 20 lin.

Hab. in Ceylon.

This is one of the most beautiful of the genus. It approaches to *Nan. Javanensis*, but is thicker and larger.

NANINA STRIATA. *Nan. testâ solidiusculâ, subpellucidâ, albidd; periostracâ tenui, olivacâ; spirâ convexusculâ, confertim transversè striatâ; anfractu ultimo anticè sublævi.*

Axis 9, diam. 15 lin.

Mr. Gray also exhibited an extensive series of *Shells* of the

GENUS TEREBRA,

forming part of his own collection, and illustrating an account of many new species of that group which he presented.

He stated that the animal has a small foot, and a very long *proboscis*, at the base of which are seated two very small *tentacula*; the *operculum* is ovate, thin, horny, rounded behind, and rather tapering in front. The shell is covered by a very thin, pellucid, horn-coloured *periostraca*: it is usually white, variously streaked with brown, the streaks being often interrupted or broken into spots by the two spiral bands of the shell; one of these bands is placed near the spiral groove and the other on the middle of the whorl. The *apex* of the cavity is frequently filled up by a calcareous deposition; but this deposition has never been observed in *Ter. duplicata*.

The species may be divided into the following sections:

I. *Anfractibus sulco spirali cingulum posterius efformante; labio inferiore tenui, concavo.*

Obs. Cingulum in junioribus magis conspicuum; labium internum in adultis rarissimè incrassatum.

Huic sectioni referendæ sunt

Ter. maculata, Lam.

Ter. tigrina.—*Buccinum felinum*, Dillw.

Ter. strigata, Sow.—*Buccinum elongatum*, Wood, *Suppl.*, f. 22.

Ter. dimidiata, Lam.

Ter. striatula, Lam.

Ter. flammea, Lam.

Ter. muscaria, Lam.

Ter. subulata, Lam.

Ter. oculata, Lam.

Ter. crenulata, Lam.

Ter. corrugata, Lam.

Ter. duplicata, Lam.

Ter. pertusa, Sow. Born, Mus., t. 10. f. 13.

Ter. nuberculata, Sow.

Ter. myuros, Lam.

TEREBRA KNORRII. *Ter. testâ turritâ, subulatâ, acuminatâ, solidâ,*

polita; *anfractibus planis, superioribus transversè sulcatis*; *albâ brunneo interruptè trifasciatâ, fasciâ posteriore latâ maculis irregularibus, medianâ angustâ, anteriore latiore maculis quadratis.*

Axis $2\frac{1}{2}$, diam. $\frac{1}{2}$ unc.

Knorr, *Deliciæ*, vol. iii. t. 23. f. 3.

This species differs from *Ter. maculata* by being more slender, and by having the front of the whorls spotted. From *Ter. tigrina* it is distinguished by the marbling of the back of the whorls.

TEREBRA AFFINIS. *Ter. testâ turrítâ, subulatâ, gracili, solidiusculâ; anfractibus planis, transversè punctato-sulcatis, tenuiter spiraliter striatis, sulco spirali posteriore profundo; aperturâ parvâ; albâ nebulis lineisque spiralibus tribus vel quatuor saturatè rufis.*

Axis $1\frac{3}{4}$ unc.

Var. a. *Parva*. $1\frac{1}{4}$ unc.

b. *Gracilior*. 1 unc.

Allied to *Ter. nubeculata*, but smaller and more slender in its proportions.

TEREBRA RUDIS. *Ter. testâ turrítâ, subulatâ, longitudinaliter plicatâ, spiraliter sulcatâ, cancellatâ; anfractibus planis, cingulo posteriore convexiusculo, noduloso; aperturâ mediocri; pallidè flavâ, apice flavo.*

Axis $1\frac{1}{2}$ unc.

TEREBRA STRIATA. *Ter. testâ turrítâ, subulatâ, gracillimâ, lævi, striis spiralibus distantibus; anfractibus convexiusculis, sulcis curvatis distantibus, cingulo parum noduloso, superioribus profundè sulcatis cinguloque altero albo-noduloso, ultimo anticè striis spiralibus frequentibus; aperturâ minimâ; pallidè brunneâ.*

Axis $1\frac{1}{2}$ unc.

Resembles *Ter. affinis*, but the grooves are not punctatè.

TEREBRA UNULATA. *Ter. testâ turrítâ, subulatâ, gracillimâ, longitudinaliter undatâ, plicis angularibus lævibus, interstitiis linearibus rufis minutè punctatis; anfractibus planiusculis, serie posticâ tuberculorum alborum majusculorum; aperturâ parvâ; pallidè flavâ.*

Axis $1\frac{1}{2}$ unc.

TEREBRA ALBA. *Ter. testâ turrítâ, subulatâ, costis longitudinalibus spiralibusque frequentibus cancellatâ; anfractibus planis, cingulo convexiusculo; aperturâ parvâ; albâ.*

Axis $\frac{3}{4}$ unc.

TEREBRA FLAVA. *Ter. testâ turrítâ, ovato-subulatâ, longitudinaliter plicatâ plicis frequentibus æqualibus, striis spiralibus frequentibus punctatis; anfractibus planis, cingulo convexiusculo; pallidè flavâ.*

Axis 1 unc.

Var. *Subulata*, *gracilis*, *costis longitudinalibus magis acutis.*

TEREBRA PUNCTATOSTRIATA. *Ter. testá turrítá, subulatá, gracili, tenui, lævi, striis spiralibus distantibus punctatis, sulco spirali posteriore profundiore; anfractibus convexiusculis, ad suturam subcrenulatis, superioribus profundè punctatis; aperturá angustá; pallidè rufo-flavá.*

Axis $2\frac{2}{3}$ unc.

TEREBRA GRACILIS. *Ter. testá turrítá, lineari-subulatá, pellucidá, lævi, politá, tenuiter spiraliter striatá, plicis longitudinalibus distantibus; anfractibus subplanis, sulco posteriore profundo; cinered, anfractu ultimo anticè purpureo.*

Axis 1 unc.

Hab. ad Africæ oras.

TEREBRA TESSELLATA. *Ter. testá turrítá, subulatá, lævi; anfractibus planis, cingulo convexo noduloso albo, superioribus cingulo altero etiam noduloso; albá brunneo interruptè trifasciatá, maculis æqualibus quadratis.*

Axis (an junioris?) 1 unc.

This differs from all the other spotted species by the hinder belt being destitute of spots: the belt is also more nodulose than in the other species which are marked with spots.

TEREBRA VARIEGATA. *Ter. testá turrítá, subulatá, costis spiralibus vix prominentibus parùm nodulosis; anfractibus planis; albá vel viridescente, seriebus tribus macularum brunnearum, maculis posterioribus quadratis inter cinguli nodulos compressos, cæteris oblongis transversis.*

Axis $2\frac{1}{2}$ unc.

Var. Pellucida, albida brunneo maculata, nodulis albis opacis.

TEREBRA PLICATA. *Ter. testá turrítá, ovato-subulatá, tenui, tenuiter spiraliter striatá, costis longitudinalibus undatis albis subdistantibus; anfractibus planis, cingulo subelevato costato, suturá crenulatá; aperturá mediocri; pallidè brunned.*

TEREBRA PUNCTATA. *Ter. testá turrítá, subulatá, gracili, acuminatá, lævi; anfractibus planis, cingulo subangusto noduloso, superioribus cingulo altero etiam noduloso; aperturá parvá; pallidè flavescente, seriebus quatuor macularum brunnearum parvarum in strigas aliquando confluentium.*

TEREBRA LEVICATA. *Ter. testá turrítá, subulatá, gracillimá, tenui, lævi, tenuissimè striatá; anfractibus planis, in medio subcarinatis, cingulo lævi subelevato porcá carinatá utrinque aucto; anfractu ultimo haud carinato; aperturá minimá; albidá.*

Axis $1\frac{1}{2}$ unc.

TEREBRA LÆVIS. *Ter. testá turrítá, subulatá, lævi; anfractibus subconcaris, in medio subcarinatis, superioribus transversè sul-*

catis, cingulo albo opaco angusto lævi sulco subprofundo anticè porcâque angustissimâ carinatâ posticè aucto; albâ flavescente variâ.

Axis $1\frac{1}{4}$ unc.

II. *Anfractibus sulco spirali cingulum posterius efformante; labio interiore incrassato subelevato.*

Obs. Quoad aperturam *Cerithia* quodammodo simulantés.

Huic sectioni referendæ sunt

Ter. cerithina, Lam.

Ter. tricolor, Sow.—*Ter. tæniolata*, Quoy, cui proprii sunt in super sulcum cingulum efformantem sulci alii spirales duo.

TEREBRA ANOMALA. *Ter. testâ turrítâ, subulatâ, lævi, politâ; anfractibus planis, sulco spirali postico profundo crenato, posticè longitudinaliter plicatis; aperturâ anticè subeffusâ, posticè angustatâ acutissimâ, labio interiore præsertim posticè incrassato; albâ, fasciâ latissimâ subposticâ alterâque angustiore anticâ cinereis vel brunneis, apice acutissimo brunneo.*

Axis $1\frac{2}{3}$ unc.

TEREBRA ORNATA. *Ter. testâ turrítâ, ovato-subulatâ, solidâ; anfractibus planis, sulco spirali posteriore profundo, cingulo convexo subnoduloso; aperturâ ovatâ, labio interiore subincrassato declivi; albâ, serièbus quatuor macularum parvarum brunnearum quadratarum, serièrum intermediarum maculis nonnuncquam in strigas oblongas confluentibus.*

Axis 4 unc.

TEREBRA CANCELATA. *Ter. testâ turrítâ, subulatâ, sulcis spiritalibus frequentibus profundis, plicis longitudinalibus æqualibus subconfertis; anfractibus planis, sulco posteriore profundo; aperturâ subparvâ, labio interiore incrassato elevato; pallidè cinereâ.*

Axis $1\frac{2}{3}$ unc.

TEREBRA STRAMINEA. *Ter. testâ turrítâ, subulatâ, subrugosâ, spiritaliter confertim sulcatâ; anfractibus subplanis, cingulo postico subelevato obliquè transversim sulcato alteroque nodulorum magis rotundatorum; aperturâ parvâ, labio interiore posticè subcalloso; flavescente.*

Axis $2\frac{1}{2}$ unc.

TEREBRA TRISERIATA. *Ter. testâ turrítâ, subulatâ, gracillimâ, subcylindricâ, costis spiritalibus subgranulosis confertis; cingulo postico convexo noduloso, ante hoc altero subangustiore, et tertio minore pone; aperturâ minimâ, labio interiore subincrassato; pallidè flavescente.*

Axis $1\frac{2}{3}$ unc.

III. *Anfractibus sulco postico nullo.** *Labio interiore tenui.*a. *Testá elongatá, gracili.**Ter. lanceolata*, Lam.*Ter. strigillata*, Lam.*Ter. hastata*, Lam.—*Ter. costata*, Mæench.TEREBRA ALBIDA. *Ter. testá turrítá, ovato-subulatá, acuminatá, lævi; anfractibus planis, suturá subimpressá; pallidè flavescenti-albidá.*Axis $1\frac{1}{4}$ unc.b. *Testá brevi.**Ter. aciculata*.—*Buccinum aciculatum*, Lam.*Ter. polita*.—*Buccinum politum*, Lam.** *Labio interiore incrassato, elevato; testá brevi.*OBS. *Nassæ* quodammodo affines; sed neque labium internum dilatatum, nec externum incrassatum.*Ter. lineolata*, Sow. Wood, Suppl., f. 22.*Ter. Tahitensis*.—*Buccinum Tahitense*, Gmel.—*Buccinum Australe*, Sow.Mr. Gray concluded by stating that specimens of all the species of *Terebra* enumerated by him are contained either in his private collection or in the British Museum.Mr. Gray also exhibited an extensive series of *land* and *fresh-water Shells* which he regarded as hitherto undescribed. He characterized them as follows:HELICOPHANTA FALCONERI, Reeve, MSS. *Hel. testá ovatá, tenui, vesiculari, profundè umbilicatá; pallidè brunneá, fasciis maculisque prope suturam saturatioribus; apice obtuso; anfractibus quatuor convexis, ultimo anticè declivi; umbilico magno, compresso; peristomate simplici, fauce albá.**Hab.* in Novâ Hollandiâ.This species is very nearly allied to *Hel. magnifica*, Fér., Moll., t. 10. f. 10, but differs in being much more umbilicated and ventricose, having a greater number of whorls, and being deeper coloured.ZONITES WALKERI. *Zon. testá depressá, umbilicatá, politá, flavo-brunneá; anfractibus $3\frac{1}{2}$ citissimè majoribus, ventricosis, tenuiter concentricè striatis; dorso striis densis spiralibus; umbilico profundo; aperturá magná, fauce albá.* B. 10. 24

Axis 8 lin., diam. 1 unc.

Hab. in Novâ Hollandiâ, 70 millia passuum circiter a Fort Macquarrie.This species is allied in form and size to *Zon. fuliginosus* of North

America, but differs in the back of the whorls being cancellately striated, and in the mouth being larger and more rounded.

BULIMUS ATOMATUS. *Bul. testâ ovatâ, acutâ, tenui, imperforatâ, pallidè brunneâ, punctis brunneis triangularibus sæpe strigosis notatâ; spirâ obtusè conicâ; anfractibus paulum elevatis; aperturâ elongatâ, tertiâ parte spiram superante; peristomate simplici; labio interno subreflexo; columellâ anticè rectâ; fauce albo.*

Axis $2\frac{1}{4}$, diam. $1\frac{1}{4}$ unc.

Hab. in Novâ Hollandiâ, 70 millia passuum circiter a Fort Macquarrie.

The three following species were discovered in the interior of New Holland by Mr. Allan Cunningham, and two of them have been figured, but not described, in Mr. Griffith's Edition of Cuvier's 'Animal Kingdom.'

HELIX CUNNINGHAMI, Gray, in Griff. Anim. Kingd., t. 6. f. 4.

Hel. testâ valdè depressâ, albo brunneoque fasciatâ; spirâ planiusculâ; anfractibus paulum convexis, ultimo depressissimo, rotundato; umbilico latissimo anfractus omnes monstrante; aperturâ oblongâ, deflexâ; labio externo reflexo, subincrassato, dextrorsum rotundato, sinistrorsum complanato recto; fauce purpurascente.

Axis 11, diam. 29, aperturæ diam. $12\frac{1}{2}$ lin.

Hab. in Novâ Hollandiâ, in sylvis densis obscuris apud Hay's Peak.

This species varies in the size of its brown bands, some individuals being nearly white with a few narrow brown bands in the centre of the last whorl; while in others the bands spread over the whole upper part and the upper half of the lower portion of that whorl. It is allied to *Hel. sepulchralis* in form, but is larger and has no keeled band round the *umbilicus*, which is also wider; and to *Hel. Radama*, Less., Cent. Zool., t. 9, from Madagascar, which differs from it in being thinner, of a uniform brown colour, and having a larger mouth, the front of the whorls near the *umbilicus* appearing also to be constantly white.

HELIX FRASERI, Gray, in Griff. Anim. Kingd., t. 6. f. 6. *Hcl.*

testâ globosâ, imperforatâ, pallidè brunneâ fasciis plurimis angustis linearibus spiralibus brunneis; spirâ convexâ, hemisphericâ; anfractibus rotundatis, ultimo maximo ventricoso; aperturâ oblongâ, semilunatâ; labio externo rotundato, reflexo, subincrassato, purpurascenti-brunneo; interno vix incrassato.

Axis 19, diam. 24, aperturæ lat. 12, long. 14 lin.

Hab. in Novâ Hollandiâ.

This species most nearly resembles *Hel. crispata*, but is larger and more globular; the whorls are more ventricose, and the bands continuous: it is covered with a thin greenish horny *periostraca*.

HELIX JACKSONIENSIS. *Hel. testá depressá, pallidè brunneá, politá, concentricè substriatá; spirá convexá; anfractibus planis, ultimo rotundato, depresso; aperturá lunatá; fauce albidá; labio externo tenui.*

Axis 3, diam. $3\frac{1}{2}$ lin.

Hab. in Nová Hollandiá, prope Port Jackson.

The shell resembles *Hel. nitida* in form, but is imperforate.

To Mr. Cunningham Mr. Gray was also indebted for three species discovered by him in Phillip's Island, a small island about 5 miles South of Norfolk Island. These he characterized as follows:

HELIX CAMPBELLII. *Hel. testá conicá, subglobosá, depressiusculá, imperforatá, subrugosá, rugis transversis densis, striisque spiralibus indistinctis; pallidè brunneá, fasciá latá subposticá pallidá; spirá conicá, convexá; anfractibus planiusculis, ultimo cariná medianá indistinctá, anticè lævi; peristomate tenui, acuto, juxta axin subincrassato, albo.*

Axis $5\frac{1}{2}$, diam. $8\frac{1}{2}$ lin.

Hab. in Insulá Phillip Maris Pacifici.

HELIX PHILLIPPII. *Hel. testá subglobosá, depressá, imperforatá, pallidè corné, pellucidá, maculis viridibus sparsis irregularibus; transversim subdistanter rugosá; spirá convexá; anfractibus planiusculis, ultimo parum ventricoso, rotundato, fasciá posticá submedianá angustá albá; aperturá semilunatá; labio tenui, supra axin subincrassato, albo.*

Axis 5, diam. 8 lin.

Hab. in Insulá Phillip.

Jun. spirá planiusculá, anfractu ultimo subcarinato.

This species is allied to the former in the shape of the mouth and structure of the lip; but the whorls are angular in the young state only, as in most of the *Helices* of Lamarck.

CAROCOLLA STODDARTII. *Car. testá conico-subglobosá, depressiusculá, tenuissimè rugosá, brunneá pallidè fasciatá vel flavescente fasciis saturatoribus, imperforatá; spirá conicá, convexá; anfractibus planiusculis, ultimo indistinctè in medio carinato; peristomate tenui, juxta axin subincrassato, acuto.*

Axis 4, diam. 7 lin.

Var. 1. *Testá saturatè brunneá, fasciá prope suturam latiusculá.*

Var. 2. *Testá supra brunneá, infra flavescente, fasciá pone carinam latá brunneá.*

Var. 3. *Testá pallidè flavá, fasciá ante carinam latá brunneá.*

Var. 4. *Testá pallidè flavá supra brunneo subnebulosá.*

Hab. in Insulá Phillip.

The remaining species were described from specimens in Mr. Gray's own collection; they were characterized as follows:

BULIMUS RHODOSTOMUS. *Bul. testá ovatá, perforatá, solidá,*

striatá, albidá roseo marmoratá, periostracá tenui olivaceá; suturá tenuiter crenulatá; anfractibus fasciis duabus posticis obscuris latis; fauce roseá; peristomate paulum incrassato; axi anticè saturatè brunneá.

Axis $1\frac{1}{4}$, diam. $\frac{3}{4}$ unc.

Hab. in Novâ Hollandiâ?

BULIMUS CRASSILABRIS. *Bul. testá ovatá, acutá, levi, politá, albá brunneo parum tinctá; spirá conicá, apice obtuso subproducto; anfractibus convexiusculis; aperturá parvá; labio externo subincrassato, interno incrassato, calloso, subrependo, perforationem parvam linearem fere tegente.*

Diam. $\frac{3}{4}$ unc.

BULIMUS APICULATUS. *Bul. testá ovatá, elongatá, perforatá, levi, albá, strigis brunneis obliquis; spirá conicá, apice acutiusculo, saturatè brunneo; ultimo anfractu obsoletissimè albo carinato; aperturá spirá brevioré, subangustá; labio externo simplice, interno tenui, ante columellam parum reflexo, saturatè brunneo.*

Axis 10, diam. $4\frac{1}{4}$ lin.

This shell resembles *Bul. Kingii*, but is more solid and has a dark apex and pillar.

BULIMUS PULLUS. *Bul. testá ovatá, subcylindricá, subimperfocatá, pellucidá, albidá, tenuiter striatá; apice conico, obtusiusculo, pellucido; anfractibus novem vel decem vix elevatis; aperturá parvá, subrotundá, semilunatá; labiis subincrassatis rotundatis.*

Axis 8, diam. $2\frac{1}{2}$ lin.

Hab. "in Indiâ Orientali ad ripas Gangis," Dr. Royle.

It varies greatly in size, and is often much smaller.

BULIMUS BURCHELLII. *Bul. testá ovato-lanceolatá, imperfocatá, albá, rugosiusculá; apice obtuso, subattenuato; anfractibus convexiusculis; aperturá ovatá, spirá tertid parte brevioré; labiis parum incrassatis, albis.*

Axis 7, diam. $2\frac{1}{2}$ lin.

Jun. anfractibus angulariter subcarinatis, labiis tenuibus.

Hab. in Africâ Australi, prope Lattakoo.

The specimens were strung together to form a necklace.

LIGNUS TENUIS. *Lign. testá ovatá, subturritá, tenuissimá, albá, pellucidá, periostracá tenui glabrâ flavá indutá; spirá conicá, apice obtuso, subproducto; anfractibus convexis, ultimo obsoletissimè carinato, anticè purpurascenti-brunneo; columellá anticè tenui, rectiusculá.*

Axis 15, diam. 9 lin.

Hab. in Africâ?

This shell is in shape most like the young of *Hel. flammigera*, Fér., Moll., t. 118, f. 5; but differs in colour, in tenuity, and in the shape of the front of the pillar-lip.

HELIX CODRINGTONII. *Hel. testâ orbiculari, conicâ, imperforatâ, solidiusculâ, pallidâ irregulariter densè albo lineatâ; spirâ convexâ; anfractibus rotundatis, ultimo depressiusculo; aperturâ lunatâ, ovatâ, obliquâ; labio externo reflexo, albo, anticè planiusculo, declivi, interno tenui.*

Axis 15, diam. 20 lin.

Hab. "in Græciâ apud Navarino," S. P. Pratt, Esq.

HELIX FIDELIS. *Hel. testâ depressiusculâ, latè perforatâ, pallidè brunneâ, profundè striatâ, periostracâ tenui pallidâ indutâ; spirâ conicâ, convexâ; anfractibus elevatiusculis, citissimè majoribus, fasciâ suturali notatis, ultimo rotundato anticè brunneo; aperturâ obliquâ; peristomate albo, subreflexo; fauce posticè albâ, anticè brunneâ.*

Axis 11, diam. 15 lin.

Var. *spirâ paulo depressiore.*

HELIX CRACHERODII. *Hel. testâ depressâ, tenui, latè perforatâ, striatâ, pellucidâ, albidâ præsertim ad spiram rufescenti-brunneo variegatâ; spirâ convexâ; anfractibus elevatiusculis, ultimo obsolete carinato, fasciâ medianâ albâ; peristomate simplici; fauce brunneâ, maculâ albâ in labii medio.*

Axis 9, diam. 14 lin.

Hab. in Indiâ Orientali?

This is perhaps a *Nanina*, but it is more largely perforated than any of that genus of which I have seen the animal.

HELIX MADERASPATANA. *Hel. testâ globosâ, depressâ, perforatâ, pallidè brunneâ albedo marmoratâ, substriatâ; spirâ elevatiusculâ; anfractibus rotundatis, cito majoribus, ultimo ventricosâ, fasciâ albidâ submedianâ, anticè pallidiorè; aperturâ semilunatâ, majusculâ; peristomate subincrassato, albedo; perforatione profundâ, angustâ.*

Axis 9, diam. 13 lin.

Hab. "in Indiâ Orientali, 200 millia passuum circiter a Maderaspatanâ versus Africum," J. W. Heath, Esq.

While on the subject of Indian *Helices*, Mr. Gray remarked that *Hel. ligulata*, Fér., Moll., t. 31. f. 2, 3, is a common Indian species; and that *Hel. cicatricosa*, Chemn., vol. ix. t. 109. f. 913, is found in the more elevated regions of India, and has lately been described by Mr. Lea under the name of *Hel. Himalayana*.

CAROCOLLA NOVÆ HOLLANDIÆ. *Car. testâ orbiculari, conicâ, subdepressâ, subperforatâ, tenui, lævi, tenuissimè elevato-punctatâ, pallidè fulvâ; spirâ conicâ, convexâ; anfractibus sex distinctis, fasciâ brunneâ submedianâ; ultimo pallidè angulariter carinato, anticè convexo, circum axin saturatè brunneo; aperturâ subangulatâ; peristomate pone carinam subinflexo, subincrassato, reflexo, nigro; labio interno tenui, brunneo; fauce albidâ, fasciâ pellucidâ.*

Axis 9, diam. 14 lin.

Hab. in Novâ Hollandiâ, 200 millia passuum ab Ostio Fluvii Macquarrie.

HELIX GRANIFERA. *Hel. testâ conicâ, orbiculari, depressiusculâ, imperforatâ, pallidè brunneâ, granis minutis albis aspersâ; spirâ convexâ, obtusâ; anfractibus vix elevatis, ultimo acutè carinato, anticè convexiusculo; aperturâ ovato-trigona; labiis incrassatis, reflexis, albis, externo anticè recto, inæqualiter 3-dentato, dentibus duobus internis obliquis approximatis, externo majore distante compresso.*

Axis 7, diam. 11 lin.

Hab. vulgaris in Indiâ Occidentali.

HELIX PACHYGASTRA. *Hel. testâ orbiculari, depressâ, imperforatâ, badiâ, levi, tenuiter striatâ; spirâ convexiusculâ; anfractibus planis, ultimo ventricosos, rotundato, obsoletissimè in medio carinato; aperturâ subtrigona; labiis incrassatis callosis, externo anticè intus dente parvo extus plicâ majore instructo.*

Axis 4½, diam. 8 lin.

Mr. Gray observed on this character that he calls that a tooth which is solid, and that a plait which is marked externally by a corresponding groove. Thus the *Chondri* of Cuvier have toothed mouths, and the *Pupæ* and *Clausilia* plaited.

The exhibition was resumed of the new species of *Shells* contained in the collection formed by Mr. Cuming, chiefly on the Western Coast of South America and among the islands of the South Pacific Ocean. Those brought on the present occasion under the notice of the Society were accompanied by observations and characters by Mr. G. B. Sowerby, and comprised the following species of the

Genus PHOLAS.

“The utmost caution is necessary in the examination and description of the various sorts of *Pholades*, on account of the extraordinary difference in the form of the same species in different stages of growth. The addition of accessory valves also, as they increase in age, must be carefully observed, in order to guard against too implicit a confidence in their number and form. And though I might be considered guilty of asserting a truism by stating that the difference in size of different individuals of the same species may and sometimes does mislead the tyro in the science of Malacology; lest such difference should mislead the adept also, let him too proceed cautiously, and when he finds a fully grown shell of half an inch in length agreeing perfectly in proportions and characters with another of two inches long, let him not conclude that it is a distinct species, but if he can find no other difference except that which exists in their dimensions, let him consider the one a giant, the other a dwarf. Let it be remembered that among the *Cyprææ* it is not un-

common to observe young shells of three inches in length, and fully grown ones of the same sort only one inch in length; likewise, of the well-known British *Pholades* there are individuals quite in a young state of two inches in length, and perfectly formed shells of the same species not more than half an inch long. For an instance in demonstration I need only refer to the *Phol. papyraceus*, so abundant at Torquay, of which the young shells have been considered by many as a distinct species and have been named by Dr. Turton *Phol. lamellosus*. This varies in size exceedingly, so that it may be obtained both in an incomplete and young state and in a fully grown condition from half an inch to nearly two inches in length. The circumstance of its having rarely occurred in an intermediate state of growth, when the anterior opening is only partly closed and the accessory valves only partly formed, led Dr. Turton and others to persist in regarding the young and old as two distinct species. Other similar instances will be shown in the course of the present concise account of some hitherto undescribed species of the same genus brought to England by Mr. Cuming."—G. B. S.

PHOLAS CRUCIGER. *Phol. testá oblongá, scabrá, marginibus anticá ventrali apertá, anticá dorsali reflexá; valvá accessoriá solitariá, posticá, transversá: long. 1·7, lat. 0·65, alt. 0·7 poll.*

Hab. ad oras Columbiæ Occidentalis et Americæ Centralis.

In this species the anterior ventral opening is somewhat more closed in some specimens than in others. It appears to form only one accessory valve, which crosses the valves behind the *umbones*: the dorsal margins are closed by *epidermis*.

Found in three localities; namely, in soft sandstone at half-tide on the shores of the island of Puna in the Gulf of Guayaquil; in soft stone at low water in the Bay of Caraccas; both in West Columbia; and in hard clay at a depth of thirteen fathoms in the Gulf of No-coiyo in Central America.—G. B. S.

PHOLAS CHILOENSIS, var. *parva*. *Phol. Chiloensis, testá parvá, tenuiore: long. 1·6, lat. 0·6, alt. 0·6 poll.*

Found in soft stone at a depth of seventeen fathoms at the island of Plata, West Columbia.—G. B. S.

PHOLAS SUBTRUNCATA. *Phol. testá ovato-oblongá, scabrá, posticè rotundato-subtruncatá, lævi; margine anticá ventrali hiatus maximo; valvá accessoriá solitariá, anticá, lanceolatá, anticè acuminatá: long. 1·9, lat. 0·9, alt. 0·8 poll.*

Hab. ad Insulam Platæ, Columbiæ Occidentalis.

Found in soft stone at a depth of seventeen fathoms. Very like our British *Pholas parva*.—G. B. S.

PHOLAS CALVA, Gray, MSS. *Phol. testá ovatá, anticè retusá, posticè subacuminatá, hiantè; valvis singulis in areas tres divis; areis, anticá scabriusculá; intermediá epidermide corneá lon-*

gitudinaliter striatâ indutâ; posticâ squamis corneis, posticè rotundatis, imbricatis, levibus, gradatim minoribus, ornatâ; parte anticâ ventrali clausâ levigatâ; valvâ accessoriâ anticâ dorsali maximâ, levi, quinquelobatâ; marginibus dorsali ventralique posticis epidermide corneo-testaceâ obtectis: long. 2', lat. 1', alt. 1.1 poll.

Hab. ad Sinum Panamæ.

Obs. Testæ junioris parte anticâ ventrali apertâ, hiatu maximo; valvâ accessoriâ nullâ, marginibus dorsali ventralique posticis haud obtectis: long. 1.5, lat. 0.7, alt. 0.7 poll.

This is another remarkable instance of extreme dissimilarity between the young and fully grown shells; the large anterior ventral opening, so conspicuous in the young shell, being completely closed up in the fully grown individual; the enormous accessory valve covering the *umbones* and spreading widely over the anterior dorsal parts of the shell is also a remarkable addition formed at its full growth.

Found in *Spondyli*, at a depth of twelve fathoms, at the Isle of Perico in the Bay of Panama: the young shells have also been taken out of hard stones at low water in the same place.—G. B. S.

PHOLAS CALVA, var. *nana*. *Phol. calva, testâ nanâ: long. 0.5, lat. 0.25, alt. 0.25 poll.*

Hab. ad Panamam.

Found in hard stones at low water.—G. B. S.

PHOLAS ACUMINATA. *Phol. testâ ovatâ, anticè rotundatâ, posticè acuminatâ, hiatu minimo; valvis singulis in areas tres divisis; areis, anticâ scabriusculâ; intermediâ epidermide corneâ longitudinaliter striatâ indutâ; posticâ squamis corneis, posticè acuminatis, imbricatis, levibus, gradatim minoribus, ornatâ; parte anticâ ventrali clausâ, levigatâ; valvâ accessoriâ anticâ dorsali magnâ, subtetragonâ, anticè unilobatâ; marginibus ventrali dorsalique epidermide corneo-testaceâ obtectis, tegmine dorsali anticè inflato: long. 2', lat. 0.9, alt. 0.9 poll.*

Hab. ad Panamam.

Found in limestone at low water. The same sort of difference is observable between the young and fully grown shells in this species as in *Phol. calva*.

One specimen of this shell in Mr. Cuming's collection merits particular notice. It demonstrates a fact of considerable importance to geologists. It is in argillaceous limestone, very much resembling *lias*, and in forming the cavity in which it resides, it has, by such chemical process as frequently takes place, absorbed a much greater quantity of the rock than could be retained or converted; this is again deposited at the upper part of the cavity; and thus the rock is recomposed.—G. B. S.

PHOLAS MELANURA. *Phol. testâ ovatâ, anticè rotundatâ, posticè obtusâ, hiatu mediocri; valvis fasciâ impressâ transversim sul-*

catâ dimidiatis; areis, anticâ obliquè divisâ, parte posticâ dorsali radiatim corrugatâ, parte anticâ ventrali tenuiore, inflatâ; posticâ longitudinaliter striatâ, posticè epidermide nigrâ indutâ; margine dorsali anticâ inflato-reflexâ; valvis accessoriis duabus, posticis, subtrigonis, supernè fornicatis: long. 1·4, lat. 0·75, alt. 0·8 poll.

Hab. ad Montem Christi, Columbiae Occidentalis.

Found in hard clay at low water.—G. B. S.

PHOLAS TUBIFERA. *Phol. testâ oblongâ, posticè subattenuatâ, subtruncatâ, anticè rotundatâ; valvis fasciâ transversim sulcatâ dimidiatis; areis, anticâ obliquè divisâ, parte posticâ dorsali radiatim sulcatâ, decussatâ, parte anticâ ventrali tenuiore, subinflatâ; posticâ longitudinaliter striatâ; margine dorsali anticâ reflexo-inflatâ; valvis accessoriis dorsalibus duabus, posticis, subovatis; epidermide posticè in duas valvas planulatas decurrente, deinde tubulum calcareum ad extremam partem conspicuum: long. 1·3, lat. 0·5, alt. 0·45 poll.*

Hab. ad Sinum Caraccensem, Columbiae Occidentalis.

OBS. Testa intermediae ætatis tubulum caret.

Found in decayed wood dredged up at ten fathoms' depth.

A marked resemblance may be easily traced between this and the *Pholas papyracea* of Southern Devonshire.

PHOLAS QUADRA. *Phol. testâ oblongâ, tenuissimâ, anticè inflatâ, rotundatâ, posticè subattenuatâ, subtruncatâ; valvis fasciâ transversim sulcatâ dimidiatis; areis, anticâ obliquè divisâ, parte posticâ dorsali concentricè lamellosâ, lamellis squamuliferis, parte anticâ ventrali tenuiore, inflatâ, radiatim obsolete costellatâ; posticâ longitudinaliter sulcatâ; margine dorsali anticâ concavo-reflexâ, musculus recipiente, epidermide oblectâ; epidermide posticè in vesiculas quatuor, undique duas, decurrente; deinde tubulum calcareum ad extremam partem conspicuum: long. 1', lat. 0·3, alt. 0·3 poll.*

Hab. ad Montem Christi, Columbiae Occidentalis.

Found in stones at low water.—G. B. S.

PHOLAS QUADRA, var. *Phol. Quadra, testâ parvâ, margine dorsali anticâ inflato-reflexâ.*

Hab. ad Montem Christi.

This variety differs only in the circumstance of the epidermis which covered the muscle contained in the concave reflected anterior dorsal margin being changed into calcareous matter. The young shells are without any tube or other accessory parts.—G. B. S.

PHOLAS CURTA. *Phol. testâ ovali, posticè acuminatâ, anticè rotundatâ; valvis fasciâ transversim sulcatâ dimidiatis; areis, anticâ obliquè divisâ, parte posticâ dorsali longitudinaliter striatâ et radiatim corrugatâ, parte anticâ ventrali tenuiore, subinflatâ;*

posticâ concentricè striatâ; valvâ accessoriâ solitariâ, dorsali, anticâ, utraq̃ue extremitate subacuminatâ, medio coarctatâ; marginibus ventrali dorsalique epidermide corneo-testaceâ obtectis, parte dorsali posticè furcatâ: long. 0.6, lat. 0.3, alt. 0.35 poll.

Hab. ad littora Columbiæ Occidentalis.

From the Isle of Lions, Province of Veragua, in soft stone at low water.—G. B. S.

PHOLAS CORNEA. *Phol. testâ oblongâ, tenui, anticè rotundatâ, posticè obtusâ; epidermide tenui cornè indutâ; valvis fasciâ dimidiatis; areâ anticâ obliquè divisâ, parte posticâ dorsali rugosiusculâ, parte anticâ lævi; areâ posticâ majore, lævigatâ; valvis accessoriis tribus, anticâ dorsali rotundatâ, posticè subemarginatâ, anticè subacuminatâ; hiatu postico magno: long. 0.9, lat. 0.5, alt. 0.5 poll.*

Hab. ad littora Columbiæ Occidentalis.

Found in the trunk of a tree at low water at Chiriqui in the province of Veragua.—G. B. S.

The whole of the *Toucans* of the Society's collection were exhibited in illustration of an account given by Mr. Gould, at the request of the Chairman, of the species of *Ramphastos*, Ill., and *Pteroglossus*, Ej., constituting the family *Ramphastidæ*. Mr. Gould's attention having been of late particularly directed to this family in the preparation of a Monograph of it, illustrated by coloured figures of all the birds comprised in it, he was enabled to state the existence of the under-mentioned species of the

Fam. RAMPHASTIDÆ, Vig.

Rostrum magnum, ad basin nudum; *tomis* serratis.

Lingua pectinata.

Pedes scansorii.

Genus RAMPHASTOS, Ill.

Ramphastos (pars), Linn.

Rostrum maximum.

Nares frontales, prope basin maxillæ sitæ.

Cauda æqualis.

Nigri, torque pectorali tectricibusque caudæ inferioribus coccineis, pedibus cæruleis. *Rostrum*, guttur, tectrices caudæ superiores, orbitæque nudæ discoloræ.

* *Caudæ tectricibus superioribus flavis.*

RAMPHASTOS ERYTHORHYNCHUS, Gmel. *Ramph. rostro rubro, culmine fasciâque basali flavis, hâc posticè lined anticè fasciâ tomisque nigris.*

Long. tot. 23 poll.; *rostri*, 6½; *alæ*, 8½; *caudæ*, 6½; *tarsi*, 2.

Red-beaked Toucan, *Edw., Gleanings, t. 238.—Lath., Syn., tom. i. p. 328.*

Ramphastos erythrorhynchus, Gmel. et Auct.

Tucana Cayennensis gutture albo, *Briss., Orn., tom. iv. p. 416. t. 31. f. 2.*

Toucan, *Le Vaill., Ois. de Par., tom. ii. t. 3.*

Toucan à collier jaune? *Id., Ib., t. 4.*

Toucan à gorge blanche de Cayenne, appelé Toucan, *Buff., Pl. Enl., n. 262.*

Ramphastos Levaillantii? Wagl., Syst. Avium.

Hab. in Cayennâ, Guianâ, et ad ripas fluvii Amazonum.

DESCR. Torques pectoralis mediocris. Irides rubræ. Orbitæ cœruleæ. Guttur album sulphureo nonnunquam tinctum.

RAMPHASTOS CUVIERI, Wagl. Ramph. rostro nigro, culmine fasciâque basali luteis, lateribus convexis.

Long. tot. 24 poll.; rostri, $7\frac{1}{4}$; alæ, 9; caudæ, $6\frac{1}{2}$; tarsi, 2.

Ramphastos Cuvieri, Wagl., Syst. Avium.

Hab. propè fluvium Amazonum?

DESCR. Præcedenti coloribus simillimus; sed paullò major, rostrique colores alii. Tectrices caudæ superiores aurantio tinctæ.

RAMPHASTOS CULMINATUS, Gould. Ramph. rostro nigro, culmine fasciâque basali stramineis, lateribus compressis subconcavis.

Long. tot. 18—20 poll.; rostri, 4—5; alæ, $8\frac{1}{2}$ —9; caudæ, $6\frac{1}{2}$ —7; tarsi, 2.

Ramphastos culminatus, Gould, in Proceedings Zool. Soc., Part i. p. 70.

DESCR. Præcedenti simillimus, sed minor; mandibula superior compressa, nec ad latera convexa. Tectrices caudæ superiores posticè in aurantio-coccineum vergentes.

*** Caudæ tectricibus superioribus albis.*

RAMPHASTOS SWAINSONII, Gould. Ramph. rostro obliquè dimidiatim flavo, torque pectorali lineâ albâ anticè auctâ.

Long. tot. 18 unc.; rostri, $5\frac{1}{2}$ —6; alæ, 9; caudæ, $6\frac{1}{4}$; tarsi, $1\frac{5}{8}$.

Ramphastos Swainsonii, Gould, in Proceedings Zool. Soc., Part i. p. 29.

Tocard? *Le Vaill., Ois. de Par., tom. ii. pl. 9.*

Ramphastos ambiguus? Swains., Zool. Ill., pl. 168.

Hab. in Columbiâ et in Mexico Australi.

DESCR. Rostri pars superior flava; pars inferior (pro tempestate?) colore variat, quippe aliquando nigra, aliquando rufa nigro, præsertim anticè, cincta. Guttur flavum, a torque pectorali coccineâ lineâ albâ sejunctum. Irides, orbitæque cœruleæ.

RAMPHASTOS CARINATUS, Swains. Ramph. rostro ad apicem sanguineo, mandibulâ superiore viridi culmine maculâque irregulari utrinque ad tomium flavis, inferiore cœruleâ.

- Long. tot. 20 unc. ; rostri, 6 ; alæ, 8 ; caudæ, 7 ; tarsi, 2.
 Ramphastos carinatus, Swains., Zool. Ill., pl. 45.
 Brazilian Pie, Edw., Glean., vol. ii. t. 64.
 Yellow-breasted Toucan, Id., Ib., vol. iii. p. 253. t. 329. (adultus).

Ramphastos Tucanus?, Shaw, Gen. Zool., vol. viii. p. 362.

Hab. in Mexico.

DESCR. Præcedenti coloribus simillimus. Linea alba pectoralis nulla. Rostrum pluricolor compressum, fasciâ angustâ basali nigrâ cinctum.

RAMPHASTOS TOCO, Gmel. *Ramph. caudæ tetricibus superioribus caudæ dimidium longitudine æquantibus.*

Long. tot. 27 unc. ; rostri, $7\frac{1}{2}$; alæ, 10 ; caudæ, 7 ; tarsi, 2.

Toucan de Cayenne appellé Toco, Buff., Pl. Enl., n. 82.

Ramphastos Toco, Auct.

Toco, Le Vaill., Ois. de Par., tom. iii. p. 7. t. 2.

Hab. in Guianâ et ad fluvium Plataë.

DESCR. Maximus. Cauda subabbreviata. Rostrum maximum, aurantiacum, fasciâ basali maculâque magnâ utrinque ad apicem mandibulæ superioris nigris. Guttur album. Torques pectoralis subevanesens. Orbitæ rubræ.

*** *Caudæ tetricibus superioribus coccineis.*

RAMPHASTOS VITELLINUS, Ill. *Ramph. rostro nigro, fasciâ propè basin cæruleâ cincto ; gutturis flavi marginibus genisque albidis.*

Long. tot. 17—18 unc. ; rostri, 5 ; alæ, 7 ; caudæ, $6\frac{1}{2}$; tarsi, $1\frac{3}{4}$.

Ramphastos vitellinus, Auct.—Swains., Zool. Ill., pl. 56.

Pignancoin, Le Vaill., Ois. de Par., tom. ii. pl. 7.

Hab. in Guianâ, Cayennâ, et ad fluvium Amazonum.

DESCR. Guttur in medio aurantiaco-flavum, latera versus multoties pallidius, præsertim ad genas auresque ubi in album evadit. Torques pectoralis latior. Orbitæ cæruleæ. Irides rubræ.

RAMPHASTOS ARIEL, Vig. *Ramph. rostro nigro, fasciâ prope basin flavâ, culmine basin versus cæruleo ; gutture flavo fasciâ pallidè flavâ a pectoris torque latâ coccinèâ sejuncto.*

Long. tot. 18 unc. ; rostri, 4 ; alæ, $7\frac{1}{2}$; caudæ, $6\frac{1}{2}$; tarsi, $1\frac{3}{4}$.

Ramphastos Ariel, Vig., in Zool. Journ., vol. ii. p. 466.

Ramphastos Tucanus, Linn.?

Tucana Brasiliensis gutture luteo, Briss., Orn., vol. iv. p. 419. pl. 32. f. 1.

Toucan à gorge jaune de Brésil, Buff., Pl. Enl., n. 307.

Toucan de Para, Vieill., Gal. des Ois., Suppl.

Ramphastos Temminckii, Wagl., Syst. Avium.

Hab. in Brasiliâ.

DESCR. Irides cæruleæ. Orbitæ rubræ.

RAMPHASTOS DICOLORUS, Linn. *Ramph. rostro viridescente, fasciâ basali nigrâ ; pectore coccineo.*

Long. tot. 14–17 unc.; *rostri*, $2\frac{3}{4}$ – $3\frac{3}{4}$; *alæ*, 7; *caudæ*, $6\frac{1}{2}$; *tarsi*, $1\frac{7}{8}$.

Ramphastos dicolorus, *Auct.*

Yellow-throated Toucan, *Lath., Syn., vol. i. p. 325.*

Petit Toucan à ventre rouge, *Le Vaill., Hist. Nat. des Toucans, pl. 8.*

Tucaï, *Azar., Voy., tom. iii. p. 143.*

Ramphastos Tucai, *Licht., Cat., p. 7.*

Ramphastos chlororhynchus, *Temm., Man. d'Orn.*

Hab. in Brasiliâ.

DESCR. Guttur flavum in medio subaurantiacum. Pectus totum coccineum. Irides cœruleæ. Orbitæ rubræ.

OBS. In junioribus rostrum brevius, sordidè flavum.

GENUS PTEROGLOSSUS, III.

Rostrum magnum.

Nares superæ, in maxillæ basi sitæ.

Cauda gradata.

Suprà viridescentes, uropygio (nisi in perpauca) discolorè; subtùs, capite, collo, rostro, orbitisque nudis ut plurimum discoloribus; pedes cœrulei.

PTEROGLOSSUS ARACARI, III. *Pter. gastræo flavo, fasciâ latâ coccinè; rostro flavescente, culmine maxillâque inferiore nigris.*

Long. tot. 18–19 unc.; *rostri*, 4–5; *alæ*, 6; *caudæ*, $7\frac{1}{4}$; *tarsi*, $1\frac{5}{8}$.

Pteroglossus Aracari, III., *et. Auct.*

Ramphastos Aracari, *Linn.*

Araçari à ventre rouge, *Le Vaill., Ois. de Par., tom. ii. p. 29. pl. 20.*

Hab. in Brasiliâ.

DESCR. Caput collumque nigra. Uropygium coccineum. Pectus ventrerque maculis indistinctis sparsis coccineis notati. Orbitæ cœruleæ. Rostrum ad basin lineâ elevatâ flavescente cinctum.

PTEROGLOSSUS REGALIS, Licht. *Pter. gastræo flavo, maculâ pectorali nigrâ, fasciâ anticè nigrâ posticè coccinè subventrali.*

Long. tot. 15–17 unc.; *rostri*, 4– $4\frac{1}{2}$; *alæ*, 6; *caudæ*, $7\frac{1}{4}$; *tarsi*, $1\frac{5}{8}$.

Hab. in Mexico.

DESCR. Rostrum flavescens, culmine, maxillæ superioris serraturis, maxillâque inferiore nigris; hâc ad basin lineâ elevatâ flavescente cinctâ. Caput collumque nigra, hoc supernè castaneo infernè coccineo posticè cincto. Pectus, venter, femoraque maculis indistinctis sparsis coccineis notati. Fascia gastræi bicolor pectus inter et ventrem interposita. Uropygium coccineum. Orbitæ cœruleæ.

PTEROGLOSSUS CASTANOTIS, Gould. *Pter. gastræo flavo, fasciâ latâ coccinè; auribus castaneis.*

Long. tot. $17\frac{1}{2}$ unc.; *rostri*, 5; *alæ*, $6\frac{1}{4}$; *caudæ*, $7\frac{1}{2}$; *tarsi*, $1\frac{5}{8}$.

Pteroglossus castanotis, Gould, in *Proceedings Zool. Soc.*, Part i. p. 119.

Hab. in Brasiliâ.

DESCR. *Pteroglossus Aracari* simillimus, nisi rostri capitisque coloribus. Rostrum flavum, culmine, maxillâ inferiore (præter lineam elevatam flavam basalem), maxillâ superiore obliquè dimidiatim, serraturisque nigris. Genæ auresque vel etiam gula nuchaque castaneæ.

PTEROGLOSSUS BITORQUATUS, Vig. *Pter. pectore nuchæque coccineis*.

Long. tot. 14 unc.; rostri, 3; alæ, 5; caudæ, 6; tarsi, 1½.

Pteroglossus bitorquatus, Vig., in *Zool. Journ.*, vol. ii. p. 481.

Hab. in Guianâ.

DESCR. Rostrum flavescenti-albidum, maxillæ inferioris dimidio apicali obliquè nigro. Caput suprâ nigrum. Capitis latera gutturque castanea, hoc posticè torque angustâ nigrâ alterâque flavâ cincto. Venter crissumque flavi. Uropygium coccineum. Orbitæ rubræ.

OBS. Fascia flava inter guttur et pectus aliquando deest.

PTEROGLOSSUS AZARÆ, Wagl. *Pter. pectore coccineo, fasciâ latâ nigrâ*.

Long. tot. 15 unc.

“Araçari Azara, *Le Vaill., Ois. de Par., Suppl.*, p. 40. t. A.” fide Wagler.

Ramphastos Azaræ, *Vieill., Nouv. Dict. d'Hist. Nat.*, tom. xxxiv. p. 282.

Pteroglossus Azaræ, Wagl., *Syst. Avium*.

Hab. rarissimus “in Brasiliâ.” Wagl.

DESCR. Rostrum flavum, serraturis nigris. Nucha castanea. Fascia flava inter guttur et pectus nulla. Orbitæ cœruleæ. In cæteris præcedenti simillimus.

OBS. Maxilla superior aliquando obliquè dimidiatim fusco-vidis.

PTEROGLOSSUS ULOCOMUS, Gould. *Pter. plumis capitis, genarum, nuchæque foliiferis*.

Long. tot. 18 unc.; rostri, 4; alæ, 5¾; caudæ, 7½; tarsi, 2¾.

Pteroglossus ulocomus, Gould, in *Proceedings Zool. Soc.*, Part i. p. 38.

Hab. prope fluvium Amazonum?

DESCR. Verticis plumæ latæ, haud barbatae, crispæ, nigræ, nitidissimæ; occipitis nuchæque magis angustæ, spatulatae, itidem nigræ; genarum gulæque magis spatulatae, flavidè albescentes nigro apiculatae. Rostrum elongatum, albo serratum, ad apicem aurantiaco-flavum, lineâ elevatâ basin cingente rubrâ; culmine aurantiaco, vittâ utrinque latâ sordidè cœruleâ, lateribus basin versus rubris; maxillâ inferiore, præter apicem aurantiaco-flavum, stramineâ. Jugulum gastræumque flava, pectore parcè ventre confertim coccineo

maculatis, pectoris maculis sublunatis, ventris fascias interruptas simulantibus. Interscapulium uropygiumque coccinea. Orbitæ cœruleæ.

PTEROGLOSSUS HYPOGLAUCUS, Gould. *Pter. subtùs cœruleo-canus, crisso coccineo.*

Long. tot. $18\frac{1}{2}$ unc.; rostri, 4; alæ, $6\frac{3}{4}$; caudæ, 7; tarsi, $1\frac{3}{4}$.

Pteroglossus hypoglaucus, Gould, in *Proceedings Zool. Soc., Part. i. p. 70.*

Hab. in Columbiâ.

DESCR. Colorum diversitate singularis admodum. Corpus totum subtùs, præter crissum coccineum, cœruleo-canum. Caput caudaque nigræ. Nucha cœruleo-cana. Interscapulium, tergum, et pteromata olivaceo-brunnea. Uropygium flavum. Remiges secundarii virides. Rectrices ad apices brunnei. Mandibularum basis obliquè flava, utrinque maculâ fasciæformi nigrâ notata; superior, nisi ad basin, sanguinea; inferioris dimidium apicale nigrum. Orbitæ cœruleæ.

PTEROGLOSSUS BAILLONI, Wagl. *Pter. subtùs et ad caput croceus.*

Long. tot. 14-16 unc.; rostri, $2\frac{1}{2}$ - $3\frac{1}{2}$; alæ, $5\frac{1}{2}$; caudæ, $7\frac{1}{2}$; tarsi, $1\frac{1}{2}$.

Pteroglossus Bailloni, *Wagl., Syst. Avium.*

Araçari Baillon, *Le Vaill., Ois. de Par., tom. ii. p. 44. t. 18.*

Ramphastos Bailloni, *Vieill., Nouv. Dict. d'Hist. Nat., tom. xxxiv. p. 283.*

Pteroglossus croceus, *Jard. & Selby, Ill. of Orn., vol. i. pl. 6.*

Hab. in Brasiliâ.

DESCR. Simplex. Suprà olivaceo-viridis, fronte flavo, uropygio coccineo. Subtùs croceus. Rostrum lutescens, basin versus in olivaceum transiens. Orbitæ rubræ.

PTEROGLOSSUS VIRIDIS, Ill. *Pter. gastræo luteo; rostro supernè flavo, in medio aurantiaco, infernè violaceo-nigro.*

Long. tot. 14 unc.; rostri, $3\frac{1}{2}$; alæ, $4\frac{1}{2}$; caudæ, 5; tarsi, $1\frac{1}{2}$.

Green Toucan, *Lath., Syn., vol. i. p. 331.*

Tucana Cayanensis viridis, *Briss., Orn., vol. iv. p. 423. t. 33. f. 1.*

Toucan verd de Cayenne, *Buff., Pl. Enl., n. 727. (mas.), 728. (fœm.)*

Ramphastos viridis, *Linn.*

Hab. in Demerarâ, Guianâ, &c.

DESCR. Suprà olivaceo-viridis, subtùs luteus; uropygio coccineo. Capite colloque in mari atris, in fœminâ castaneis. Rostrum robustum, culmine latè sordidè flavo lineâ longitudinali a lateribus aurantiacis mandibulæ superioris discreto; mandibulâ inferiore violaceo-nigrâ, ad basin roseâ. Orbitæ cœruleæ.

PTEROGLOSSUS INSCRIPTUS, Swains. *Pter. gastræo flavo; rostro flavo, culmine, apice, serraturarum maculis transversis, fasciæque propè basin nigris.*

Long. tot. 12-13 unc.; *rostri*, $2\frac{3}{4}$; *alæ*, 4; *caudæ*, 5; *tarsi*, $1\frac{1}{8}$.
Pteroglossus inscriptus, Swains., *Zool. Ill.*, pl. 90.

Hab. in Guianâ.

DESCR. Præcedenti coloribus simillimus; abdomen magis flavum, rostrumque maximè diversum.

PTEROGLOSSUS MACULIROSTRIS, Licht. *Pter. ventre lutescente, crisso coccineo; mandibulæ superioris lateribus maculis transversis nigris subfasciatis.*

Long. tot. 12 unc.; *rostri*, $2\frac{1}{4}$; *alæ*, $4\frac{3}{4}$; *caudæ*, 5; *tarsi*, $1\frac{3}{8}$.

Araçari Koulik du Brésil, *Le Vaill.*, *Ois. de Par.*, vol. ii. p. 45. t. 15. "Suppl. p. 41. f. AA (mas.);" fide Wagler.

Araçari à bec tacheté; *Ramphastos maculatus*, Vieill., *Gal. des Ois.*, tom. ii.

Pteroglossus maculatus, *Jard. and Selby, Ill. of Orn.*, vol. i. pl. 26.

Hab. in Brasiliâ.

DESCR. Uropygium cum stragulo concolor. Fascia lunata inter cervicem et stragulum sulphurea. Caput (præter genas auresque), collum, pectusque in mari aterrima, in fœminâ castanea; genæ in mari aurantiacæ, in fœminâ viridescenti-brunneæ; aures sulphurei, fœminæ magis sordidi. Rostrum pro genere brevius, cinerascens, ad culmen in olivaceum vergens, ad latera maculis irregularibus nigris circiter quatuor notatum. Rectrices sex intermediæ rufescenti-brunneo apiculati. Orbitæ cœruleæ.

PTEROGLOSSUS CULIK, Wagl. *Pter. ventre imo olivaceo, crisso coccineo; rostro nigro basin versus in rubrum transeunte.*

Long. tot. 12-13 unc.; *rostri*, $2\frac{3}{4}$; *alæ*, $4\frac{1}{2}$; *caudæ*, $4\frac{1}{2}$; *tarsi*, $1\frac{1}{4}$.

Araçari Koulik de la Guiane, *Le Vaill.*, *Ois. de Par.*, tom. ii. p. 41. pl. 13.

Green Toucan, *Edw., Glean.*, vol. iii. pl. 330.

Toucan à collier de Cayenne, *Buff., Pl. Enl.*, n. 577 (mas.).

Toucan à ventre gris de Cayenne, *Id., Ib.*, n. 729 (fœm.).

Ramphastos piperivorus, Linn.

Pteroglossus Culik, *Wagl., Syst. Av.*

———— Reinwardtii? *Id., Ib.*

———— Langsdorffii? *Id., Ib.*

Hab. in Cayennâ et Guianâ.

DESCR. Præcedenti simillimus mas differt rostro, rectricibus omnibus castaneo apiculatis, genisque cum auribus concoloribus flavis. Fœminæ caput supernè nigrum; collum castaneum; fascia cervicalis nulla; genæ auresque flavæ; jugulum pectusque cœruleo-cana. Orbitæ, in sexu utroque, cœruleæ.

PTEROGLOSSUS PRASINUS, Licht. *Pter. suprâ aureo-viridis, uropygio concolore; subtus viridis; crisso rectricumque apicibus rufis; genis gulâque albescentibus.*

Long. tot. 13 poll.; *rostri*, 3.

Hab. in Mexico.

DESCR. Rostrum flavum, culminis strigâ, maculâ ante nares, alterâ longitudinali ad tomium, mandibulâque nigris. Rectrices ante apices rufos remigesque in cœruleum vergentes.

OBS. In junioribus maxilla ad basin rufo nebulosa apicem versus in flavum et lutescentem transit. In his venter sordidè viridis.

PTEROGLOSSUS SULCATUS, Swains. *Pter. viridis, uropygio crissoque concoloribus; gula albescente; genis cœruleis.*

Long. tot. 11-13 poll.; rostri, 3-3 $\frac{1}{4}$; alæ, 5; caudæ, 4 $\frac{3}{4}$; tarsi, 1 $\frac{1}{8}$.

Pteroglossus sulcatus, Swains., in *Journ. Roy. Instit.*, vol. ix. p. 267. *Zool. Ill.*, pl. 44. *Temm., Pl. Col.*, pl. 356.

Hab. in Guianâ.

DESCR. Subunicolor. Remiges rectricesque in cœruleum ad apices vergentes. Rostrum pro genere brevius, latum, ad latera et supernè complanatum; maxillæ latera 2-, mandibulæ 1-sulcata: nigrum, culmine apiceque saturatè rufo-brunneis, mandibulæ angulo sanguineo.

The whole of the species characterized above are figured in Mr. Gould's 'Monograph of the Ramphastidæ,' which is just completed; and all of them, with the exception of *Pteroglossus Azaræ*, *Pter. inscriptus*, and *Pter. prasinus*, are contained in the Society's collection, and were exhibited to the Meeting.

July 22, 1834.

William Yarrell, Esq., in the Chair.

A letter was read, addressed to Mr. Vigors by B. H. Hodgson, Esq., Corr. Memb. Z.S., and dated Nepâl Residency, February 14, 1834. It referred to various living animals which it is the intention of the writer to forward to Calcutta for transmission to England during the ensuing season. It also referred to a collection of skins of *Mammalia* and *Birds* which have already been dispatched by Mr. Hodgson for the Society. Among them are skins of the *Chiru Antelope*, *Antilope Hodgsonii*, Abel, male and female; and the writer refers to these as elucidating the points which had been unascertained by him at the time of making to the Society his several previous communications, abstracts of which have been published in the Proceedings of the Committee of Science and Correspondence, Part i. p. 52, and Part ii. p. 14; and in the Proceedings of the Society, Part i. p. 110.

The communications referred to "left only the inguinal pores, the number of teats in the female, and the fact of her being cornute or otherwise, doubtful: those points are now cleared up. The female is hornless, and has two teats only: she has no marks on the face or limbs, and is rather smaller than the male. The male has a large pouch at each groin, as in *Ant. Dorcas*: that of the female is considerably smaller. These escaped me," Mr. Hodgson says, "till I got this season's specimens, remarkable as the pouches are. But the fact is that they are composed of very thin brittle skin, and, as they hang loose by a narrow neck, they are apt to be torn off by the Bhoteahs while preparing the specimens."

Mr. Hodgson again describes in detail the maxillary tumours or accessory nostrils of the *Chiru Antelope*. He regards as analogous to these accessory nostrils, and as essentially the same with them in use, the intermaxillary pouches noticed by Col. Hamilton Smith as partially characteristic of his *Cephalophine* and *Nemorhædine* subgenera of *Antilope*.

Referring to Col. Hamilton Smith's distribution of the genus *Antilope*, Mr. Hodgson remarks that "the *Chiru Antelope* can only belong either to the *Gazelline* or the *Antilopine* group. Hornless females would place it among the latter; but lyrate horns, ovine nose, and want of sinus, would give it rather to *Gazella*, and its singular inguinal purses further ally it to *Ant. Dorcas* of this group. But from *Gazella* it is distinguished by the accessory nostrils or intermaxillary pouch, the hornless females, the absence of tufts on the knees, and of bands on the flanks. The *Chiru* with his bluff bristly

nose, his intermaxillary pouches, and hollow-cored horns, stands in some respects alone," and hence Mr. Hodgson is disposed to suggest the regarding it as representing "a new subgenus, to be termed *Pantholops*, the vulgar old name for the *Unicorn*." "The habits and manners of the *Chiru*, his medial size, and his elegant vigorous form, ally him most to the *Antilopine* and *Gazelline* groups, and equally to both."

Some extracts were read from a Letter addressed by the President, Lord Stanley, to the Secretary, giving an account of the breeding of several *Birds* in his Lordship's Menagerie at Knowsley. The *red Grosbeak*, *Loxia Cardinalis*, Linn., has a nest of three young which are nearly fledged; and a single young one of the *Towhee Bunting*, *Emberiza erythrophthalma*, Gmel., has been hatched. The *Loxia cucullata* has this year, as last year also, made a nest and laid one egg; and the *American yellow Bird*, *Fringilla tristis*, Linn., is now sitting.

The gosling of the *Sandwich Island Goose*, respecting which a notice from Lord Stanley was read on May 27, (p. 41.) "is now fully as large as the parents, and nearly resembles them in plumage; the only differences being about the neck, which is more indistinct in front and wants the full extension of the black down the nape, and the collar at the bottom just above the breast is only faintly marked. The legs also are as yet of a dirty greenish yellow tinge. It is not pinioned, but has hitherto shown no wish to use its wings. In fact they are the tamest of the tame, scarcely will move out of one's way if in the walks, and are constantly coming into the building, even more familiarly than the *common Ducks*."

A specimen was exhibited of the *Manis Temminckii*, Smuts, forming part of the collection made by Mr. Steedman in Southern Africa. Mr. Bennett stated that his object in calling the attention of the Society to it was to point out the external characteristics of a species known to its original describer by its skeleton alone and by a few detached scales.

It may be thus characterized:

MANIS TEMMINCKII, Smuts. *Man. capite brevior; corpore latiore, squamis magnis, 11-seriatis; caudâ truncum longitudine subæquante, latitudine paulò minore, ad apicem subtruncatum vix angustiore.*

Hab. apud Latakoo?

Long. tot. 25½ unc.; caudæ, 12; lat. dorsi, 8; caudæ, prope apicem, 5.

The most remarkable features of this animal are the shortness of the head; the breadth of the body; and the breadth of the tail, which is nearly equal to that of the body, and continues throughout the greater part of its extent of nearly the same width, tapering

only slightly towards the end where it is rounded, and almost truncate. In the shortness of the head and the general form of its upper part, the *Man. Temminckii* bears nearly the same relation to the *Man. Javanica*, as is borne by the *Weasel-headed Armadillo*, *Dasyypus 9-cinctus*, Linn., to the *six-banded*, *Das. 6-cinctus*, Ej. Of the eleven series of scales on the body, one on each side is ventral rather than dorsal. The scales are very large, longitudinally striate, smooth as though rubbed towards their hinder margin, and slightly produced into a thin, short, and rounded process: they are comparatively few in number, the large scales of the middle line of the back from the *occiput* to the tip of the tail being twenty only in number; in *Man. pentadactyla*, Linn., they are about thirty; and in *Man. Javanica*, Desm., they vary from about forty-five to fifty. A peculiarity in the distribution of the scales of *Man. Temminckii* is the cessation of the middle series of them at a short distance anterior to the extremity of the tail, so that the last four transverse rows consist of four scales each, each of the preceding ones having five.

Some notes by Mr. Rymer Jones of the dissection of an *Agouti*, *Dasyprocta Aguti*, Ill., were read.

The animal was a male; adult; measuring $19\frac{6}{10}$ inches from the extremity of the jaws to the root of the tail; and weighing 4lbs. $4\frac{1}{2}$ oz. Its head measured $4\frac{6}{10}$ inches in length; the tail, $1\frac{9}{10}$.

The *testes* were situated within the *abdomen*, in contact with the abdominal muscles, to which they were connected by a duplicature of *peritoneum*; the *epididymis*, contained in a pouch apparently formed by the *cremaster* muscle, protruded through the internal oblique. The preputial orifice was $1\frac{1}{10}$ inch from the *anus*.

The stomach, $5\frac{1}{2}$ inches long and 8 inches in its greatest circumference when moderately distended, had a remarkable constriction between its cardiac and pyloric portions which gave it the appearance of consisting of two distinct cavities; the pyloric portion bulged out on each side of the *pylorus* so as to make the *duodenum* commence from a central depression.

The *omentum* was shrivelled up under the stomach, and reached, when unfolded, rather more than half way to the *pubes*: it extended further on the right side than on the left.

The intestines measured in total length 253 inches. The length of the small intestines was 222 inches, and their greatest circumference (at the *duodenum*) $1\frac{1}{10}$; the *cacum* was 6 inches long, and its greatest circumference $2\frac{9}{10}$; the large intestines measured 25 inches, the greatest circumference being at the commencement of the *colon*, where it was 2 inches, and whence it gradually tapered towards the *rectum* which was only $\frac{6}{10}$ in circumference. There were two glands, each $\frac{9}{10}$ of an inch in length, and placed on each side of the *anus*: they secrete a yellow substance resembling the *cerumen* of the ear and of a fragrant odour.

The liver, weighing $4\frac{1}{2}$ oz., occupied the usual situation, and con-

sisted of five lobes. The anterior or cystic was the largest, and presented inferiorly two deep fissures, one of which (the left) received the suspensory ligament, and the other the gall-bladder. The next in size was the left lobe. To the inferior surface of the right lobe two *lobuli* were appended. The concave surface of the liver was very irregular in its aspect. The gall-bladder was pyriform, 1 inch in length, and deeply buried in a fissure in the concavity of the largest lobe of the liver. The bile entered the intestine $\frac{1}{2}$ inch from the pyloric ring.

The *pancreas*, of an elongated form and running along the dorsal aspect of the stomach across the spine, measured $2\frac{3}{4}$ inches.

The spleen weighed $5\frac{3}{4}$ drachms. It laid close to the spine, above or anterior to the left kidney, and attached to the cardiac extremity of the stomach. Its form was flat ovoid, with a deep *fossa* on its posterior margin lodging the anterior portion of the kidney.

The lungs consisted of four lobes on the right side and of three on the left. They measured $3\frac{1}{2}$ inches in length; the breadth of the right was $1\frac{3}{5}$, of the left, 1. They weighed (much diseased and studded with tubercular masses) 2 oz. 6 drachms.

The heart, of a globular shape, and very muscular, measured $1\frac{1}{5}$ inch in length, $1\frac{1}{5}$ in lateral breadth, and $1\frac{1}{5}$ in its antero-posterior diameter. It was seated more in the left than in the right side of the chest, lying on the cartilages of the second, third, fourth, fifth, sixth, and seventh ribs, and on the corresponding portion of the *sternum*.

The *venæ cavæ* were one superior and one inferior. The *aorta* gave off from the convexity of its arch one large trunk, which, after running half an inch from the main artery, divided into an *arteria innominata*, a left carotid, and a left subclavian.

The *trachea* consisted of twenty-eight rings, each forming nearly a complete circle. The superior *cornu* of the *os hyoides* was composed of three parts. The upper opening of the *larynx* was cup-shaped and patulous, owing to the prolongation of the arytenoid cartilages. The *rima glottidis* was small and triangular. The borders of the *epiglottis* formed two sides of an equilateral triangle.

The mucous membrane of the *pharynx* presented numerous prominent *papillæ*. The tongue was $2\frac{6}{10}$ inches in length, and had numerous very delicate *papillæ*, which were scarcely visible to the naked eye.

The nostrils were contracted and very moveable.

The pupil was oval, its long axis being placed horizontally.

The supra-renal glands, each 1 inch in length, were of an oblong shape and dingy yellow colour. They were situated close to the sides of the bodies of the second and third lumbar *vertebræ* in contact with the anterior extremity of the kidneys.

Of the kidneys the left rested on the transverse processes of the third, fourth, and fifth lumbar *vertebræ*; the right was placed more anteriorly, extending from the posterior margin of the last rib to

the transverse process of the fourth lumbar *vertebra*. They were flattened behind, and each measured in length $1\frac{9}{10}$ inch, in breadth $1\frac{2}{10}$.

At the anterior and external extremity a portion was separated from the rest by a deeply indented line, and resembled a patch stuck on. The weight of the two kidneys was 1oz. $5\frac{3}{4}$ drachms. The urinary bladder, pyriform, and measuring, when moderately distended, $3\frac{1}{2}$ inches in length and $1\frac{3}{4}$ in diameter, was situated chiefly above the brim of the *pelvis*.

The *testes* were barrel-shaped, $1\frac{1}{2}$ inch long and $\frac{1}{2}$ in diameter. The *epididymis* was of a triangular form, about $\frac{1}{2}$ inch long and the same in diameter, and attached by the apex of the triangle to the extremity of the *testis*. The *vasa deferentia* terminated at the sides of the *verumontanum*. The *vesiculae seminales*, $2\frac{1}{4}$ inches in length, consisted of a middle portion, into which sixteen or eighteen little appendices opened: they terminated at the sides of the *verumontanum*. The prostate glands, four in number, formed of masses of convoluted vessels, the two superior ones evidently differing in texture from the two inferior, terminated in the same situation. Cowper's glands were of the size of kidney beans, internally very spongy, and filled with glairy fluid.

The *penis* was 4 inches in length. Its muscles consisted of two *levatores penis*, arising from the posterior margin of the *os pubis* close to the *symphysis*, sending forwards two tendons running upon the *dorsum penis* to be inserted into the bone covering the dorsal aspect of the *glans*: and two *erectores penis*, arising from the whole length of the posterior margin of the *os pubis*, and embracing the external aspect of the *crus penis* on each side, into the sheath of which they were inserted. The *ejaculatores seminis* were very massive; and the *urethra* very muscular. The *glans penis* was $1\frac{1}{4}$ inch in length, and bifid at the extremity, which contained a spacious orifice, at the bottom of which were seen two smaller apertures: the anterior of these was the opening of the *urethra*; the posterior led to a rugous canal about $\frac{3}{4}$ inch in length, at the bottom of which were placed two osseous spurs, which, by a muscular apparatus, may be protruded from the extremity of the *penis*. Externally the *glans* was studded with very fine bristles, both upon its upper and lower surface, which were arranged for the most part in longitudinal lines pointing backwards. From the lateral aspects of the middle half of the *glans* projected two horny plates, serrated at their external margin, all the minute teeth pointing backwards.

The morbid appearances observed were tubercles in the lungs, liver, and kidneys.

August 12, 1834.

N. A. Vigers, Esq., M.P., in the Chair.

A Letter was read, addressed to the Secretary by B. H. Hodgson, Esq., Corr. Memb. Z. S., and dated Nepál, February 28, 1834. It related chiefly to the distinguishing characteristics between the *Ghōrāl* and the *Thár Antelopes*.

Mr. Hodgson remarks that *Antilope Goral*, Hardw., and *Ant. Duvaucellii*, Ham. Smith, agree with each other in manners, form, and characters; as do also *Ant. Sumatrensis*, Shaw, and *Ant. Thar*, Hodgs. But the two former appear to him to differ very considerably in characters, as they certainly do in structure and in manners, from the two latter. He is, nevertheless, disposed to leave the whole of them for the present in one group, for which it will, however, be necessary to propose amended characters. The double thick coat of *Antt. Goral* and *Duvaucellii*, he is aware, may be referred to their cold habitat, and he suggests that possibly even their want of suborbital sinus may be attributable to the same cause.

Observing first that the solidity of the core of the horns must cease to form part of the generic character of *Antilope*, he proceeds to offer the following characters for the

Subgenus NEMORHEDUS, *Smith*.

Structure assuming a Caprine form, suited for heavy climbing or for leaping. Horns in both sexes; their cores hollow and connected with the frontal sinuses, but not porous and only subcellular; inserted behind the orbits, short, conical, simply bent back, annulo-wrinkled, parallel to the plane of the face, and nearly so to each other, subremote at the base. Suborbital sinus small or wanting. No inguinal pores. Tail Caprine. Ears longish, pointed, and striated. Muzzle small. Maned. Hair of two sorts and thick, or of one sort and spare. Four teats in the females.

Reside in the mountainous and woody regions of the continent and islands of India, solitarily or in small groups.

1. *Ant. Sumatrensis*, Shaw. *Cambing Ootan*.

2. *Ant. Duvaucellii*, Ham. Smith. Variety of *Ant. Goral*?

3. *Ant. Goral*, Hardw. Characters extremely Caprine, being allied to *Antilope* only by its round and ringed horns. Size small. Attitude gathered, with the back much arched, and structure adapted for leaping. Limbs moderately stout and rigid. General form of the skull Caprine, with the ridge-line much bent, and the *parietes* depressed at a strong angle to the frontal bones, and no indentation

before the orbits. Fifty inches long, exclusive of the tail, and twenty-seven high. Horns seated on the crest of the frontals, six inches long, parallel to each other, and the points inclined inwards; 20 to 30 *annuli* extending two thirds up the horns, crowded and vague, especially towards the base, somewhat interrupted by faint longitudinal *striæ*, pearled, truncated, independent of each other, and equally developed all round. No suborbital sinuses. A half muzzle. Upper lip clad. Tail conico-depressed and half nude only below. Fur of two sorts, abundant and loosely applied to the skin. A short semi-erect mane on the *vertex*. Knees usually callous and nude, but not congenitally so.

Colours rusty and brown, paler below. Line of the *vertex*, tail, chest, and a stripe down the front of the fore legs and back of the hind brown-black. Outsides of the ears rusty. Lips and chin rufescent white. A large patch of pure white at the junction of the head and neck below. Horns, hoofs, and muzzle black. *Iris* dark-hazel. Eye mean.

Female: rather smaller and paler hued.

Young: redder and destitute of marks, or mane.

Inhabits the juxta-Himâlayan region of Nepâl.

4. *Ant. Thar*, Hodgs. The *Thâr* of the Nepâlese. Characters less decidedly Caprine than in the last. Very nearly allied to the *Cambing Ootan*. Back straight. Withers higher than the croup, and structure suited for heavy climbing, not for leaping. Limbs very stout and rigid, with higher hoofs, the edges of which are raised above the pads. General form of the skull Cervine, with the ridge-line moderately convexed, and the *parietes* not depressed at a strong angle to the frontal bones. A deep indentation before the orbits. Horns posterior to the orbits but below the crest of the frontals, eight inches long, rather stouter and less falcated than in the preceding, subdivergent with the points inclined outwards; with 20 to 30 crowded *annuli* extending two thirds up the horns, the *annuli* truncated, pearled, equal all round, independent, broken by decided longitudinal *striæ*. One inch below the eye a suborbital sinus opening on a nude space by a round puncture, and furnished with a fleshy thick gland secreting a viscous humour, as in *Ant. Sumatrensis*. A half muzzle larger than in the preceding, and spreading a little over the upper lip. Tail shorter, depressed, nude below. Fur of one sort only, and scanty, harsh, and applied to the skin. A semi-erect mane, as in the *Ghoral*. Knees callous, perhaps congenitally so: *sternum* not so. Size large. Sixty-four inches long by thirty-eight high, and upwards of 200 lbs. in weight.

Colour of the whole animal above, with the entire head and neck, jet black; on the flanks mixed with deep clay red. The limbs and hams outside, as far down as the great flexures, clay red, nearly or wholly unmixed; the rest of the limbs hoary or rufescent hoary. Outsides of ears dark. Chest pale. No stripes down the legs. Lips and chin dull hoary, and a stripe of pure hoary running backwards over

the jaws from the gape. Horns, hoofs, and muzzle black. *Iris* dark hazel. Eye mean.

Female: as large as the male and like him in all material respects.

Young: paler and mixed with grey.

Inhabits the precipitous and wooded mountains of the central region of Nepál, up and down which it rushes with fearful rapidity, though it does not spring or leap well; nor is it speedy.

The exhibition was resumed of the new species of *Shells* contained in the collection formed by Mr. Cuming on the Western Coast of South America, and among the Islands of the South Pacific Ocean. Those exhibited on the present evening consisted of various species of *Anatinidæ* and of the *Myidous* genus *Saxicava*: they were accompanied by characters by Mr. G. B. Sowerby.

Genus PERIPLOMA, Schum.

PERIPLOMA LENTICULARIS. *Per. testá ellipticá, lenticulari, æquivalvi, albá, impolitá, tenui; epidermide tenuissimá; margine dorsali anticá sinuatá, cum margine anticá angulum superne efformante: long. 0·7, lat. 0·3, alt. 0·55 poll.*

Hab. ad Insulam Muerte dictam.

The inside of this species shines with a silvery lustre, but is not iridescent.

It was found in sandy mud at a depth of eleven fathoms.—G. B. S.

PERIPLOMA PLANIUSCULA. *Per. testá oblongá, planiusculá, inæquivalvi, albicante, impolitá, tenuiusculá; latere antico brevi, subrugoso; marginibus, anticá subdeclivi subtruncatá, dorsali rectiusculá; epidermide tenui, pallescente: long. 2·4, lat. 0·8, alt. 1·8 poll.*

Hab. ad Sanctam Elenam.

Odd valves alone were found on the sands.

This species bears some resemblance to Professor Schumacher's *Per. inæquivalvis*; it differs, however, in shape from that species, and both the valves are deeper.—G. B. S.

Genus ANATINA.

ANATINA PRISMATICA. *An. testá oblongá, subtrapeziformi, crassiusculá, opacá, lamíná interná prismaticá; latere antico truncato, hiatu maximo; lamellá utriusque valvæ interná subumbonali, ex tuberculo ligamentifero decurrente, ramoque ligamenti cornei ferè parallelo, anticè inclinato: long. 2·7, lat. 1·3, alt. 1·8 poll.*

Hab. ad littora Oceani Polaris Meridionalis. (New South Shetland.)

Driven on shore after a gale.—G. B. S.

ANATINA COSTATA. *An. testá oblongá, albá, posticè rostratá, anticè rotundatá; costis octo radiantibus, anticis gradatim mino-*

ribus; rostro levi; margine ventrali crenatâ: long. 0·3, lat. 0·15, alt. 0·2 poll.

Hab. ad Sanctam Elenam.

A single specimen was found in sandy mud at a depth of six fathoms.

In form it resembles *An. longirostrata*.—G. B. S.

Genus LYONSIA.

LYONSIA PICTA. *Ly. testâ obovatâ, tenui, posticè latiore; epidermide fuscâ, lineis nigris undulatis pictâ; marginibus, anticâ dorsali declivi, posticâ dorsali rectiusculâ; anticâ ventrali hiante, hiatu parvo, posticâ et posticâ ventrali rotundatis: long. 0·85, lat. 0·4, alt. 0·65 poll.*

Hab. ad Insulam Muerte dictam.

Found attached to particles of sand in eleven fathoms' water.

As it increases in size it becomes rather irregular in its form.—

G. B. S.

LYONSIA BREVIFRONS. *Ly. testâ oblongâ, pallescente; epidermide obscurâ, cornedâ; latere antico brevi, acuminato, postico longiore, attenuato; marginibus, dorsali posticâ elongatâ rectiusculâ, dorsali anticâ brevi declivi, anticâ ventrali hiante, hiatu declivi, elongato, magno: long. 0·8, lat. 0·3, alt. 0·4 poll.*

Hab. ad Sanctam Elenam.

Found in sandy mud at from six to eight fathoms' depth, attached to particles of sand.—G. B. S.

Genus SAXICAVA.

SAXICAVA TENUIS. *Sax. testâ oblongâ, tenui, albâ; epidermide pallescente; latere antico brevi, subtruncato: long. 0·8, lat. 0·25, alt. 0·4 poll.*

Hab. ad Pacosmayo et ad Lambeyeque.

Found in coral rock at twenty-five fathoms' depth.—G. B. S.

SAXICAVA PURPURASCENS. *Sax. testâ oblongâ, solidiusculâ, anticè brevissimâ, posticè truncatâ; epidermide tenuissimâ, posticè purpurascente: long. 1·1, lat. 0·4, alt. 0·4 poll.*

Hab. ad Insulam Muerte dictam.

A single specimen was found in sandy mud at a depth of eleven fathoms.—G. B. S.

SAXICAVA SOLIDA. *Sax. testâ oblongâ, solidâ, rugosâ, subirregulari, albicante; epidermide cornedâ; latere antico brevissimo, postico elongato truncato, costis divergentibus duabus conspicuis: long. 1·4, lat. 0·6, alt. 0·8 poll.*

Hab. ad Sanctam Elenam.

Found in clefts of rock brought up from a depth of eighteen fathoms.

The specimens from which the above characters have been taken appear to give the most perfectly regular form of the species. There are other varieties from Payta and the Isle of Muerte.—G. B. S.

A collection of *land and fresh-water Shells*, formed in the Gangetic Provinces of India by W. H. Benson, Esq., of the Bengal Civil Service, and presented by that gentleman to the Society, was exhibited. It comprised forty species, and was accompanied by a descriptive list prepared by the donor, and also by detailed notices of some of the more interesting among them. These notices were read: they are intended by Mr. Benson for publication in the forthcoming No. of the 'Zoological Journal.'

From the time that he first became acquainted with the animal of a *Shell* resembling in all respects, except in its superior size, the European *Helix lucida*, Drap., Mr. Benson regarded it as the type of a new genus of *Helicidæ* intermediate between *Stenopus*, Guild., and *Helicolimax*, Fér. He had prepared a paper on this genus, for which he intended to propose the name of *Tanychlamys*; he finds, however, that Mr. Gray has recently described (page 58) the same genus under the name of *Nanina*. The generic characters observed by Mr. Benson are as follows:

NANINA, Gray.

Testa heliciformis, umbilicata; peritremate acuto, non reflexo.

Animal cito repens. Corpus reticulosum, elongatum. Pallium amplum, foramine communi magno perforatum, peritrema amplexans; processibus duobus transversè rugosis (quasi articulatis) omni latere mobilibus instructum, unico prope testæ aperturæ angulum superiorem exoriente, altero apud peripheriam testæ. Os anticum inter tentacula inferiora hians; labia radiato-plicata. Tentacula superiora elongata, punctum percipiens tumore oblongo situm gerentia. Penis prægrandis; antrum cervicis elongatum latere dextro et prope tentacula situm. Solea complanata pedis latera æquans. Cauda tentaculata; tentaculum subretractile, glandulâ ad basin positâ humorem viscidum (animale attractato) exsudante.

Mr. Benson describes particularly the habits of the species observed by him, which he first discovered living at Banda in Bundelkond on the prone surface of a rock. The animal carries the shell horizontally or nearly so; is quick in its motions; and, like *Helicolimax*, it crawls the faster when disturbed, instead of retracting its *tentacula* like the *Snails* in general. In damp weather it is rarely retracted within its shell, the foot being so much swelled by the absorption of moisture that if it is suddenly thrown into boiling water the attempt to withdraw into the shell invariably causes a fracture of the aperture. In dry weather the foot is retracted, and the aperture is then covered by a whitish false *operculum* similar to that of other *Helicidæ*. The two elongated processes of the mantle are con-

tinually in motion, and exude a liquor which lubricates the shell, supplying, apparently, that fine gloss which is observable in all recent specimens. The fluid poured out from the orifice at the base of the caudal horn-like appendage is of a greenish colour; it exudes when the animal is irritated, and at such times the caudal appendage is directed towards the exciting object in such a manner as to give to the animal a threatening aspect.

Of several specimens brought to England by Mr. Benson in 1832, one survived from December 1831, when it was captured in India, until the summer of 1833.

Another *Shell* particularly noticed by Mr. Benson is the type of a new genus, allied to *Cyclostoma*, which he has described under the name of *Pterocyclos* in the first No. of the 'Journal of the Asiatic Society of Calcutta.' Mr. Benson has ascertained, by the inspection of specimens in the collection of Mr. G. B. Sowerby, that the *Cycl. bilabiatum* of the latter is the same shell at a more advanced period of growth; when, in addition to the notch and overhanging wing at the upper part of the aperture, the peristome becomes thickened and sinuated. The *Cycl. Petiverianum*, Gray, exhibits an approach to *Pterocyclos* in the crude formation of a wing at the upper part of the right lip.

A species of *Assiminia*, Leach, obtained at Barrackpore, has the shell ovate-conical, narrowly umbilicated, varying infinitely in colour, and generally banded with red, white, and glaucous; the aperture is entire, oblong-oval, angular at the upper part. The head has only two short, thick, subcylindrical *tentacula*, with the percipient points placed at their summits. The snout is like that of *Paludina*, transversely corrugated, and bilobed or rather emarginate at the middle of the extremity; the lobes rounded. The mantle is free; the branchial cavity open. The foot has a spiral horny *operculum*, angular at the upper end.

Specimens of this *Assiminia* were preserved alive in a glass, replenished occasionally with fresh or salt water, until after the vessel in which Mr. Benson returned to England had passed St. Helena.

A *Snail* obtained near Sicrigali and the river Jellinghy, one of the mouths of the Ganges, is thus characterized by Mr. Benson:

HELIX INTERRUPTA. *Hel. testâ sinistrorsâ, orbiculato-convexd, infrâ tumidd, umbilicatâ, ad peripheriam obtusè angulatâ, longitudinaliter confertissimè striatâ, suprâ striis interruptis, fasciis transversalibus dispositis; spirâ apice obtusâ; peritremate tenui, acuto.*

Animal. *Tentacula duo superiora elongata capitulis tumidis puncta percipientia gerentibus, duo inferiora capitulis parvis tumidis. Pes elongatus, compressus, marginatus, suprâ granulatus, aperturâ terminali anum et membrum carnosum mucorem emittens continente.*

In this latter character, that of the excrement being voided from

an opening in the terminal and posterior part of the foot instead of from the *foramen commune*, the animal of *Hel. interrupta* differs most materially from the other *Helices*. The angulated periphery of the shell shows an approach to *Carocolla*, but Mr. Benson is not aware that the animal of this genus differs from that of *Helix*. From *Hel. Himalayana*, Lea, the *Hel. interrupta* is distinguished by its peculiar sculpture; its spire is also more exerted.

The collection also contained specimens of an *Arcaceous Shell* found in the bed of the Jumna at Humeerpore in Bundelkund. Its form, its lozenge-shaped ligamental scar, and the position and order of the teeth are those of the *Arcaceæ* generally; while the oblique production of the teeth on the posterior side down the inner surface of the cardinal *lamina*; the separation of the teeth into two sets by the interposition of an edentate portion of the cardinal *lamina*; and the freedom of the shell from ribs, with the exception of the ridges which occur at its angles; distinguish it from the marine *Arcaceæ*. Mr. Benson proposes for the fluviatile form the generic appellation *Scaphula*.

Referring to specimens contained in the collection of a new form of *Solenaceous Shell*, described by him in the 'Journal of the Asiatic Society of Calcutta,' under the name of *Novaculina*, Mr. Benson describes also a second species of the genus which he has recently obtained from South America, and points out the characters which distinguish it from *Nov. Gangetica*.

The following Note by Mr. Benson relative to the importation of the living *Cerithium Telescopium*, Brug., adverted to at the Meeting on March 25, 1834, (page 22,) was read.

"The possibility of importing from other countries, and especially from the warmer latitudes, the animals which construct the innumerable testaceous productions that adorn our cabinets and museums, the accurate knowledge of which is so necessary to enable the conchologist rightly to arrange this beautiful department of nature, must be an interesting subject to every naturalist, and will render no apology necessary for the following notices extracted from my journal. Their publicity may incite others who may have opportunities of trying the experiment to follow the example.

"January 1832. Observed near the banks of the canal leading from the eastern suburb of Calcutta to the Salt Lake at Balliaghát, heaps of a *Cardita* with longitudinal ribs, of a large and thick *Cyrena*, and of *Cerithium Telescopium*, exposed to the heat of the sun for the purpose of effecting the death and decay of the included animals previously to the reduction of the shells into lime.

"Early in the month I took specimens of them, and leaving them for a night in fresh water I was surprised to find two *Cerithia* alive. I kept them during a fortnight in fresh water, and on the 22nd January carried them, packed up in cotton, on board a vessel bound for England. After we had been several days at sea I placed them

in a large open glass with salt water, in which they appeared unusually lively. I kept them thus, changing the water at intervals, until the 29th May, when we reached the English Channel. I then packed them up, as before, in a box, and carried them from Portsmouth to Cornwall, and thence to Dublin, which I did not reach until the 14th June; here they again got fresh supplies of sea water at intervals. One of them died during a temporary absence between the 30th June and 7th July; and on the 11th July the survivor was again committed to its prison, and was taken to Cornwall and thence to London, where it was delivered alive to Mr. G. B. Sowerby on the 23rd July.

“This animal had thus travelled, during a period of six months, over a vast extent of the surface of the globe, and had for a considerable portion of that time been unavoidably deprived of its native element.”—W. H. B.

At the request of the Chairman, Mr. Heming exhibited a *Swift*, *Cypselus Apus*, Ill., preserved in spirit, and showing a considerable dilatation at the base of the lower jaw and upper part of the throat. White has observed that “*Swifts*, when wantonly and cruelly shot while they have young, discover a lump of insects in their mouths, which they pouch and hold under their tongue;” but from this notice it would scarcely have been anticipated that so large a collection was made as was found in the present instance. The dilatation had a rounded appearance; distended the skin so as to show distinctly and widely separated the insertion of each of the small feathers at this part; and measured in length 11 lines, and in depth 6. On opening the pouch it proved to be simple, and unconnected except with the cavity of the mouth.

Mr. Heming also exhibited a drawing taken from the recent bird.

Dr. Marshall Hall showed some experiments in the decapitated *Turtle*. Irritation of the nostrils, *larynx*, and spinal marrow induced acts of inspiration; that of the fins and tail induced movements of the other parts respectively.

But the principal object of Dr. Hall was to show that irritation of the nerves themselves equally induced movements of the limbs, &c. When either the sentient or the motory branch of the lateral spinal nerves was stimulated, motions were induced in all the limbs. Dr. Hall stated that a movement of inspiration and of deglutition was caused in the *Donkey* by irritation of the eighth pair of nerves. It has been already stated that irritation of the nostrils, or the branches of the fifth pair of nerves, induced inspiratory acts in the *Turtle*. From these and other facts, Dr. Hall is induced to consider the functions of these two nerves as similar. He further observed that both are nerves of secretion, and that both are muscular nerves—if the minor portion of the fifth be included—as well as excitors of respiration; the fifth differs chiefly in being sentient, being dis-

tributed to external as well as internal surfaces. With the fifth and eighth, Dr. Hall associates other spinal nerves. He considers respiration as a part of a general function of the nervous system, which presides over the *larynx*, *pharynx*, sphincters, ejaculators, &c., to which he has given the name of reflex, from its consisting of impressions carried to and from the *medulla oblongata* and *medulla spinalis*. Some illustrations of this function were given by Dr. Hall at the Meeting of the Committee of Science and Correspondence on November 27, 1832, (Proceedings, Part ii. p. 190,) and further illustrations of it have formed the subject of a Paper by him, which has since been published in the 'Philosophical Transactions'. The experiments shown on the present occasion demonstrate the existence of a series of physiological facts at variance with the law laid down by M. Müller in his Paper entitled "Nouvelles Expériences sur l'effet que produit l'Irritation mécanique et galvanique sur les racines des nerfs spinaux; par Jean Müller, Professeur à l'Université de Bonn," and published in the 'Annales des Sciences Naturelles,' tom. xxiii. (1831), p. 95, viz. "Il suit encore qu'il y a des nerfs qui n'ont point de force *motrice* ou *tonique*, qui ne peuvent jamais occasionner des mouvemens par eux-mêmes, qu'ils soient irrités par l'action galvanique ou mécanique, et qui ne conduisent le courant galvanique que passivement, comme toutes les parties molles humides; qu'il y a en revanche des *nerfs moteurs* ou *toniques* (*nervi motorii seu tonici*) qui montrent à chaque irritation médiate ou immédiate leur force tonique, qui agit toujours dans la direction des branches des nerfs et qui n'agit jamais en arrière." In Dr. Hall's experiments the influence first pursued a backward course to the spinal marrow, being afterwards reflected upon the muscles.

Dr. Hall next observed, in regard to respiration, that, whilst Sir Charles Bell is contending that it is involuntary, and Mr. Mayo that it is voluntary, the old doctrine of its being mixed, or partaking of both properties, is the true one. He founded this view upon the following facts:

1. If the *cerebrum* be removed, respiration continues as an involuntary function through the agency of the eighth pair of nerves;
2. If the eighth pair be divided, respiration equally continues, but as an act of volition;
3. If the *cerebrum* be first removed, and the eighth pair be then divided, respiration ceases on the instant. Volition is first removed with the *cerebrum*; the influence of the eighth pair is then removed by its division. The two sources of the mixed or double function being both cut off, the function ceases.

Dr. Hall explains and reconciles in this manner the difficult and apparently contradictory facts,—that the *medulla oblongata* alone, above the origin of the eighth pair of nerves, or the eighth pair of nerves themselves, may be divided, without arresting the respiration; but that the *medulla oblongata* cannot be divided at the origin of these nerves without arresting the respiration instantly. In the

first case the agency of volition is alone removed, and the respiration continues through the influence of the eighth pair; in the second, that of the eighth pair is removed, and the respiration continues as a function of volition; but in the third, both influences are destroyed at once, and with them the mixed or double function.

The same mixed or double character belongs to the other parts of the reflex function, as that of the *larynx*, the sphincters, the ejaculators. All the organs of the reflex function are also alike impressed through the medium of the mental affections or passions.

The course of the influence which constitutes the reflex function must be divided into the incident, or that into the *medulla*, and the reflected, or that from the *medulla*. The nerves which conduct the incident impression have, hitherto, received no designation; the others constitute a part of the system of muscular nerves. To the former class belong nerves which doubtless supply the *larynx* with its impressibility by carbonic acid, &c., &c., and hitherto undescribed, untraced; to the latter, the superior and inferior laryngeals: to the former belong the fifth, in the nostrils, in the face,—the eighth in the lungs, &c.; to the latter the respiratory nerves: to the former, nerves hitherto undescribed of the sphincters, ejaculators, &c.; to the latter, the muscular nerves supplying these parts.

The whole constitutes the subject of an investigation in which Dr. Hall has been for some time engaged.

August 26, 1834.

William Yarrell, Esq., in the Chair.

An extensive series was exhibited of skins of *Mammalia*, collected in Nepâl by B. H. Hodgson, Esq., Corr. Memb. Z. S., and presented by that gentleman to the Society. It included twenty-two species, several of which were first made known to science by the exertions of Mr. Hodgson, while others still remain to be described by him.

A paper "On the *Mammalia* of Nepâl," written by Mr. Hodgson, has been read before the Asiatic Society of Calcutta, and has been published in the 'Journal' of that Society: but Mr. Hodgson has availed himself of the opportunities which have occurred to him since it was written, to make various additions and corrections in the copy transmitted by him to the Society, portions of which have been read at several previous meetings.

Mr. Hodgson's paper commences by an account of the physical characters of Nepâl, which are so varied, according to the elevation of the several districts, as to render it necessary, when treating on its natural productions, to divide it into three regions. The lower region consists of the Tarâi or marshes, the Bhawar or forest, and the lower hills, and has the climate of the plains of Hindoostan, with some increase of heat and great excess of moisture. The central region includes a clusterous succession of mountains, varying in elevation from 3000 to 10,000 feet, and having a temperature of from 10° to 20° lower than that of the plains. The juxta-Himalayan region, or Kachâr, consists of high mountains, the summits of which are buried for half the year in snow: the climate has nothing tropical about it, except the succession of the seasons.

Mr. Hodgson then enumerates the *Mammalia* which have been observed in Nepâl, adopting in their arrangement the system of Cuvier, and noticing as regards each the region in which it occurs. He adds occasional remarks as to their habits; and notices many which appear to him to be undescribed.

The following is an abstract of this portion of his communication:

QUADRUMANA

are limited to the southern region, where Mr. Hodgson is aware of the existence of

Semnopithecus Entellus, F. Cuv., which has been introduced by religion into the central region, where it flourishes, half domesticated, in the neighbourhood of temples.

Macacus radiatus, Geoff.

He regards it as probable that among the lower hills occurs *Nycticebus Bengalensis*, Geoff.

CHEIROPTERA.

Pteropus, Briss.

Molossus, Geoff.

Rhinolophus, Geoff.

Vespertilio, Geoff.

Species of these genera are abundant in the Tarâi; but there are few in the central region, and fewer still in the northern. One species of *Rhinolophus* and three of *Vespertilio* harbour in out-houses in the central region; and one species of *Pteropus*, of a smaller size and duller colour than the *Pter. medius*, Temm., of the plains, appears in troops in the autumn to plunder the gardens of the ripe pears.

PLANTIGRADA.

Talpa, Linn. This genus is found only in the Kachâr.

Sorex Indicus, Geoff. A dull slaty blue variety of this species is found only in the lower and central regions.

Prochilus labiatus, Ill.,

Helarctos Malayanus, Horsf.,
are found in the Tarâi.

Ursus isabellinus, Horsf.,

Ursus Thibetanus, F. Cuv.,
occur in the central and northern regions.

Gulo orientalis, Horsf. Lower region.

Ratelus mellivorus, Storr. In the lower region and also in the proximate part of the central tract.

Ailurus fulgens, F. Cuv.,

Ictides albifrons, Val.,
belong to the Kachâr, though they occasionally occur in the central region.

Paradoxurus, F. Cuv. Of this genus an undescribed species, coloured, especially in youth, like *Mustela flavigula*, Bodd., is found in the central region. A second species, perhaps the *Par. Bondar*, Gray, occurs in the Tarâi.

DIGITIGRADA.

Viverra undulata, Gray, ? Common in the central region.

Viverra Rasse, Horsf.,

Viverra Indica, Geoff.,

are common in the Tarâi.

Herpestes griseus, F. Cuv., occurs in the lower region; and a second species, apparently undescribed, of a somewhat smaller size and darker duller grey colour, is found in the central region.

Felis Tigris, Linn.,

Felis Pardus, Linn.,
Felis Leopardus, Linn.,
Felis jubata, Linn.,

are all found in the lower region.

The *Leopard* extends into the central region, where it abounds, but is much less dreaded than the *Bear*.

The *Leopard* is found moreover in the northern region; and the *Tiger* also occurs there, close to the snows, but scarcely in the central region.

Felis Nepalensis, Vig. and Horsf.,
Felis Moormensis, Hodgs.,

belong to the central region; as does also an undescribed and beautifully marked species.

Felis viverrinus, Benn., is confined to the Tarâi.

Other small species of *Felis*, not yet determined, are found in the northern region.

Mustela flavigula, Bodd., and two allied and hitherto undescribed species, occur in the central region. A fourth *Martin*, with a shorter tail than the above and more resembling the common *Weasel* of England, is found in the Kachâr. It is the

Martes laniger, Hodgs. Its fur is thick, spirally twisted, woolly, and of a uniform dirty cream colour.

Mustela putorius, Linn.? is an inhabitant of the central, and more abundantly of the northern, region.

Lutra, Linn. Of this genus Mr. Hodgson conceives that no less than seven species are found in Nepâl, five of which differ from the two which inhabit the plains of Hindoostan. Four of these he regards as new, differing materially in length, in bulk and proportions, and in colour; one of them is yellowish white all over; the rest are brown, more or less dark, some having the chin and throat or under surface paled nearly to white or yellow.

Canis familiaris, Linn. The *Pariah* is the only *Dog* of the lower and central regions. The *Thibetan Mastiff* is limited to the Kachâr, into which it was introduced from its native country, but in which it degenerates rapidly; there are several varieties of it.

Canis primævus. Hodgs.

Canis aureus Indicus. In the lower and central regions; rare in the Kachâr.

Canis Bengalensis, Shaw., the small Indian insectivorous *Fox*, occurs in the Tarâi.

Canis n. s.? a large *Fox*, peculiar to the Kachâr.

Canis Lupus, Linn. In the lower region.

RODENTIA.

Hystrix leucurus, Sykes. In the central and lower regions.

Lepus nigricollis, F. Cuv.? In the Tarâi.

Lepus n. s. A species as large as the ordinary *Hare* and nearly resembling it occurs rarely in the central and northern regions.

Sciurus Palmarum, Linn. Abundant in the southern region.

Sciurus n. s.?, of an earthy brown colour tipped with golden yellow, occurs in the central region.

Sciuropterus nitidus, F. Cuv. In the lower and central regions, but rarely in the latter.

Mus decumanus, Linn.,

Mus Rattus, Linn. Both very numerous and troublesome.

Mus Musculus, Linn. Very uncommon.

Field Mice are frequently met with.

EDENTATA.

Manis n. s., allied to *Man. Javanica*, Desm. Of frequent occurrence in the hills of the lower region and in the mountains of the central tract.

PACHYDERMATA.

Elephas Indicus, Cuv.,

Rhinoceros unicornis, Cuv., are both abundant in the forest and hills of the lower region, whence in the rainy season they issue into the cultivated parts of the Tarâi to feed upon the rice crops.

Mr. Hodgson suggests that there are two varieties, or perhaps rather species, of the *Indian Elephant*, the Ceylonese and that of the Saul forest. The Ceylonese has a smaller lighter head, which is carried more elevated; it has also higher fore-quarters. The *Elephant* of the Saul forest has sometimes five nails on its hinder feet.

The *Rhinoceros* goes with young from seventeen to eighteen months and produces one at a birth. At birth it measures 3 feet 4 inches in length, and 2 feet in height. An individual born at Katmandoo eight years since measures now 9 feet 3 inches in length; 4 feet 10 inches in height at the shoulders; the utmost girth of his body is 10 feet 5 inches; the length of the head, 2 feet 4 inches; of the horn, 5 inches: he is evidently far from being adult. It is believed that the animal lives for one hundred years; one, taken mature, was kept at Katmandoo for thirty-five years without exhibiting any symptoms of approaching decline. The young continues to suck for nearly two years. It has when born and for a month afterwards a pink suffusion over the dark colour proper to the mature hide.

Sus. scrofa, Linn., var.

RUMINANTIA.

Cervus Axis, Erxl.

Cervus porcinus, Zimm.

Cervus n. s.?, a brown porcine *Axis*.

Cervus Elaphus, Linn.,?

Cervus Aristotelis, Cuv.

Cervus equinus, Cuv.

Cervus n. s., of a black colour and belonging to the same group as the two last named.

Cervus Bahrainja, n. s., serving, with *Cerv. Wallichii*, Cuv., to connect the *Elephine* and *Rusan* groups of the genus.

Cervus Ratwa, Hodgs.

All these *Deer*, except the last, which belongs to the *Muntjaks*, inhabit the lower hills. The *Ratwa* is proper to the central region and occasionally occurs in the lowest valleys of the Kachâr.

Antilope Goral, Hardw. Northern and central regions.

Antilope Thar, Hodgs. Central region, and occasionally in the northern and southern.

Antilope Chickara, Hardw.,

Antilope Cervicapra, Pall.,

both belong exclusively to the lower region.

Mr. Hodgson is of opinion that the distinctions attempted to be established as between two *Chickaras* on account of some differences in the drawings and specimens of General Hardwicke and Duvaucel cannot be maintained.

Capra Jharal, Hodgs. In the northern region exclusively.

Ovis Ammon, var.

Ovis Musmon, var. Also in the northern region.

Mr. Hodgson states that the wool of the *Huniah* or Bhotean domesticated *Sheep* is superb; and suggests that attempts should be made to naturalize the race in England. To such attempts he is willing to render every assistance in his power. It is suited only for the northern region of Nepâl, suffering much from the heat of the central district.

Bos Taurus, var. *Indicus*.

Bos grunniens, Linn. Domesticated in the Kachâr.

Bos Bubalus, Briss.

Specimens were exhibited of several *Reptiles*, which were accompanied by notes by Mr. Gray. These notes were read.

Mr. Gray regards the *Testudo Spengleri*, Walb., as the type of a new genus of *Emydidæ*, having, like the *fresh-water Tortoises* generally, the toes lengthened and covered by a series of shields, but these members, instead of being webbed as in the other genera of the family, are quite free from each other; the legs, moreover, are destitute of fringe along their outer edge. This structure of the feet and limbs indicates habits less aquatic than those of the *Emydidæ* generally; and Mr. Gray states that such appears to be the case with the *Em. Spengleri*, for though he has watched for a considerable time the specimen now living at the Society's Gardens he has never observed it to enter the water.

From the beautiful figure of the animal of *Em. spinosa* given by Mr. Bell in his 'Monograph of the *Testudinata*,' Mr. Gray is inclined to believe that this species belongs to the same genus with *Em. Spengleri*, the toes, especially those of the hind feet, being

represented in the figure as quite free. The shells of the two species agree in being of a pale brown colour above, and in being sharply toothed on the margin; in both which respects they differ from the other *fresh-water Tortoises*.

GEOEMYDA.

Testa depressa, ad marginem latè serrata. Pedes utrinque squamis elongatis biseriatis instructi, haud ciliati: digiti liberi, subgraciles, supernè squamis tecti. Caput parvum, cute tenui, lævi, durà obtectum.

Indiæ (et Africæ?) Incolæ.

1. GEOEMYDA SPENGLERI. *Geo. testâ oblongâ, pallidè brunneâ, tricarinatâ, carinis continuis nigro marginatis; margine posticâ profundè serratâ; sterno nigro luteo marginato; scutellis axillaribus inguinalibusque nullis.*

Testudo Spengleri, *Walb., in Berl. Naturf., theil v. t. 3.*

Testudo serrata, *Shaw, Gen. Zool., vol. iii. t. 9.*

Testudo tricarinata, *Bory St. Vinc., Atlas, t. 37. f. 1.*

Emys Spengleri, *Schweig., 32.*

Hab. "in Chinâ," J. R. Reeves, Esq.

2. GEOEMYDA SPINOSA. *Geo. testâ suborbiculari, carinatâ; areolis spinâ centrali armatis; margine totâ profundè serratâ; suprâ pallidè fuscâ, sterno pallidè fusco brunneo radiato; scutellis axillaribus inguinalibusque mediocribus.*

Emys spinosa, *Bell, Test., t. . fig. 1, 2.—Gray, Hardw. Ind. Zool., tom. ii. t. . fig. 1.*

Hab. "apud Penang," Capt. Hay.

A new genus of *Geckotidæ* is characterized by Mr. Gray under the name of

GEHYRA.

Digiti 5-5, ad basin dilatati, serie unicâ squamarum transversalium integrarum tecti, ad apicem compressi, liberi, omnes (præter pollices) unguiculati. Pori femorales nulli.

This genus is very nearly allied to *Platydyctylus*, Cuv., in the form of the base of the toes; but the ends of the toes are thin, simple, and compressed, instead of being more widely dilated, and with the last *phalanx* affixed along the upper surface. The body is covered with small uniform granular scales, and the belly with larger flat scales; the tail is ringed with square scales, those of the under surface being the largest.

GEHYRA PACIFICA. *Ge. pallidè brunnea albido punctata, subtis alba; occipitis strigâ utrinque fasciisque latis irregularibus dorsalibus quinque vel sex pallidis; artubus pallido marmoratis.*

Long. corporis $2\frac{3}{4}$ poll.; caudæ, totidem.

Hab. in Insulâ quâdam Oceani Pacifici.

The collection of the British Museum contains a specimen, much discoloured, of what appears to be a second species of this genus. Another species is contained in the Muséum d'Histoire Naturelle at Paris.

A living specimen was exhibited of the *Red Viper* of the Somersetshire Downs. It had been sent from Taunton to Mr. Gray, who states that he has compared it very attentively with the *black* and with the *common Viper* of England, and that he cannot discover the slightest difference between them except in the shade of the colour. They all agree in having the upper lip shield white, with brown or black edges, and in having a series more or less distinct of lozenge-shaped spots. He consequently refers them all to *Vipera Berus*, Daud.

Mr. Gray also states that he believes the *Lacerta adura*, described by the Rev. R. Sheppard in the seventh volume of the 'Linnean Transactions', to be the male, observed during the summer, of the common *Lacerta vivipara*, the *Lacerta agilis* of British authors; the several characters which were pointed out by Mr. Gray at the Meeting on May 22, 1832, (Proceedings of the Committee of Science, Part ii. p. 112,) being at that season so fully developed as to produce the appearances noticed by Mr. Sheppard in his account of his presumed species.

The following notes were read of the dissection of a specimen of *Azara's Opossum*, *Didelphis Azaræ*, Temm., which recently died at the Society's Gardens. The general dissection was performed by Mr. Martin; that of the organs of generation by Mr. Rymer Jones.

"The animal was an adult male, measuring, exclusive of the tail, 1 foot 5 inches, the tail being 1 foot 4 inches in length.

"On opening the body the situation of the *viscera* was as usual. Their examination afforded the following details.

"The liver was found to consist of three lobes; one on the left, of a pyramidal figure, a large central lobe, and one on the right, small, irregular in shape, with a bifid margin. On the convex or external aspect of the middle lobe, the gall-bladder showed itself, filling up a circular aperture so regularly defined as to appear artificial; and on turning back the liver, the gall-bladder was seen to occupy a deep *sulcus*, incomplete or unclosed (as it were) in its centre. The gall-bladder was of a globular form, its diameter being about $\frac{7}{8}$ of an inch; its duct ran in a furrow, which took its course midway across the lobe on its under surface. At 2 inches from the neck of the gall-bladder, this cystic duct was joined at an acute angle by the hepatic ducts, the number of which corresponded with that of the lobes. The *ductus choledochus communis* thus formed continued its course for nearly 2 inches, and entered the *duodenum* about the same distance below the *pylorus*, the aperture being very small and valvular. With the biliary duct, the pancreatic also en-

tered the intestine, there being but one common termination between them. On tracing the pancreatic duct it was found issuing from the middle of the right extremity of the gland, which latter was somewhat irregular in shape, having each extremity divided into two *cornua*, and to the junction of the two right *cornua* the duct was easily traced. The length of the *pancreas* was $2\frac{3}{4}$ inches.

“ The stomach was ovoid in form, the cardiac portion occupying nearly one half of the *viscus*, and the pyloric orifice being not more than $\frac{1}{2}$ an inch from the cardiac. The position of the pyloric valve was marked by a deep indentation. The length of the stomach was 3 inches; its diameter opposite the cardiac orifice, $2\frac{3}{4}$.

“ The spleen was attached by a loose fold of mesentery to the middle of the greater curvature of the stomach, and was somewhat triangular in shape. It was $2\frac{1}{4}$ inches in length, and $1\frac{1}{2}$ in breadth at the broadest part.

“ The *duodenum* was attached throughout by a mesenteric fold, its diameter was about $\frac{7}{8}$, or nearly an inch. From the *duodenum* the small intestines gradually diminished in diameter to the ileocolic valve, their diameter in the narrowest part being reduced to $\frac{1}{2}$ an inch. The total length of the small intestines was 3 feet 7 inches. The *cæcum* was simple in figure, with a blunt *apex*, and measured 2 inches in length. The large intestines measured $4\frac{1}{2}$ inches.

“ The kidneys were of the usual shape and exhibited no difference in their respective situation, neither being placed higher than the other. The membranous capsule was little adherent, and no superficial vessels were observable. The *papilla* was single. The length of each kidney was $2\frac{1}{2}$ inches, the breadth $\frac{3}{4}$, and the thickness $\frac{5}{8}$. The renal capsules appeared wanting.

“ The lungs were very irregularly divided, there being four lobes on the right side and but one, without any fissure, on the left.

“ The rings of the *trachea* at its upper part formed nearly an entire circle, which, as they proceeded downwards, became less and less complete till, at the lower part, three-fourths only of the ring was cartilage. The number of rings was twenty-one, but many were so bifurcated at the lower part as to render it doubtful whether they should be counted as double or single.

“ The sterno-thyroid and sterno-hyoid muscles were very strong and distinct. The thyroid glands were found lying one on each side of the first six rings of the *trachea*, and measured $\frac{3}{4}$ of an inch in length.

“ The mucous lining of the *œsophagus* was puckered into longitudinal *rugæ* throughout its whole extent, except for the last $\frac{3}{4}$ ths of an inch, where the *rugæ* were transverse.

“ The length of the tongue from the *epiglottis* was $3\frac{7}{8}$ inches, its breadth $\frac{1}{2}$. Its *apex* was flat and round, and the middle of the anterior portion of its *dorsum* or upper surface covered with retroverted *papillæ*, a line of fungiform *papillæ* occupying each side of the

root, between which three isolated *papillæ* appeared very distinct, forming the three angles of a triangle. The submaxillary glands were $1\frac{1}{2}$ in length, $\frac{1}{2}$ inch in breadth, and $\frac{1}{4}$ in thickness.

“To the above details I am able, through the kindness of Mr. Rymer Jones, to add a description of the organs of generation, illustrated by a sketch, which that gentleman was so obliging as to make from the parts dissected. In removing the skin from the animal the penis had been injured.

“The bladder was $1\frac{1}{2}$ inch in length and $\frac{3}{4}$ in breadth, its shape being oval. The muscular coat was thick. The fibres were gathered into strong transverse *rugæ* on the anterior and posterior aspects of the *viscus*, while laterally they formed two longitudinal bands, each $\frac{1}{2}$ inch in breadth, running from the *fundus* to the neck. Beneath the transverse groups of fibres another set was found affecting a longitudinal direction.

“The end of the *penis* being deficient,—what remained measuring $1\frac{1}{2}$ inch,—the *urethra* measured 5 inches in length; the length of its prostatic portion being $2\frac{2}{3}$ inches, of the membranous $\frac{2}{3}$, of the spongy $1\frac{1}{2}$. Its circumference at the neck of the bladder and throughout the prostatic portion was $\frac{1}{2}$ of an inch, at the membranous portion only $1\frac{1}{2}$ line, at the bulbous portion it was again dilated to $\frac{1}{2}$ of an inch. The lining membrane presented no folds, but was perforated along the whole prostatic portion by innumerable microscopic apertures arranged in parallel rows, through which on squeezing the prostate its secretion oozed.

“The ureters entered the bladder by two little apertures placed close together immediately above its neck.

“The *vasa deferentia* terminated by two small orifices upon the under surface of the *urethra*, about 2 lines from the commencement of its prostatic portion.

“The prostate, $2\frac{2}{3}$ inches in length, inclosed the commencement of the *urethra* for that extent, with a glandular envelopment $\frac{3}{16}$ ths of an inch in thickness. Its commencement was marked by a decided line of black matter, and the first half inch of its extent was tinged by the same dark substance, resembling in colour the section of a bronchial gland. The succeeding inch was of a creamy white hue, while the last portion presented a dingy green tinge. Its ducts have been described.

“Cowper’s glands were two in number on each side, flask-shaped, of the size of large peas, soft in texture, of a white colour, and wrapped in a fibrous envelope. The ducts from the glands on each side joined before entering the *urethra*, and the four opened by two orifices, at the commencement of the bulbous portion of that tube.

“The bulb of the *corpus spongiosum* was divided into two parts, each of an oblong shape, $\frac{5}{8}$ ths of an inch in length, and $\frac{1}{4}$ in thickness; the *parietes* formed by a strong muscle constituting nearly the whole mass.

“ The *crura penis* were unattached to the *ischia*, but were enveloped in a muscular sac, the walls of which were the eighth of an inch in thickness.”

In illustration of the notes, preparations were exhibited of the stomach and *cæcum*, as was also the drawing above referred to of the organs of generation and bladder.

September 9, 1834.

Joseph Cox Cox, Esq., in the Chair.

A letter was read, addressed to the Secretary by Dr. E. Rüppell, and dated Frankfort, August 10, 1834. It was accompanied by specimens of *Magilus antiquus*, Rupp., including both the shell and the animal, and of the shell and animal of a new genus of *Pectinibranchiata* *Gasteropodous Mollusca*. The latter was accompanied by a description by Dr. Rüppell, who characterizes it under the designation of

LEPTOCONCHUS.

Testa tenuis, pellucida, subglobosa, spirâ depressâ, subobsoletâ: *aperturâ* magnâ, subovali, extremitatibus in contrarium versis, marginibus haud coalitis, dextro tenui anticè subexpanso: *columellâ* nullâ, *umbilico* nullo, anticè truncatâ, contortâ.

Animal proboscide elongato, retractili: *tentaculis* duobus, complanatis, trigonis, internè ad basin coalitis, externè in medio oculos gerentibus: *pede* mediocri, *operculo* nullo: *pallio* ad marginem circulari, haud appendiculato, ad latus sinistrum subproducto: *foramine branchiali* submagno.

The colour of the shell which constitutes the type of this new genus is constantly a slightly sordid milk-white. It is sulcated externally by numerous longitudinal undulated closely set lines, the outer whorls encroaching on the spire of the earlier ones so as almost to obliterate it.

Length of the adult shell, $14\frac{3}{4}$ lines; greatest breadth, $12\frac{1}{2}$; length of the young shell, $7\frac{1}{2}$; breadth, 6.

Individuals of all ages have the shell thin and fragile, and constantly occur imbedded in the calcareous mass of polypes, having a communication with the sea by only a moderate opening. They are found in the Red Sea, and are most frequently met with in *Meandrina Phrygia*.

To distinguish the shell of *Leptoconchus* from that of *Magilus* it is sufficient to observe that in the latter the two margins of the aperture are always united, while in the former genus they are always disunited. The animals are distinguished by the possession and the want of an *operculum*, and by the difference in the *proboscis*; the *siphon* of *Magilus*, moreover, does not occur in *Leptoconchus*.

Dr. Rüppell suggests that the systematic place which should be assigned to this genus is near the *Ianthina*. The number of the *tentacula*, the oral *proboscis*, the mantle destitute of *siphon*, the pectinated *branchiæ* composed of closely heaped pyramids, and the absence of *operculum*, are so many marks of affinity; to which may be added some of the characters of the shell: but he states himself to be perfectly aware that the difference between the habitations of

these genera is so wide as to afford no confirmation of the correctness of this approximation.

A letter was read, addressed to the Secretary by B. H. Hodgson, Esq., Corr. Memb. Z.S., and dated Nepal, March 4, 1834.

It commences by remarking on the difficulty experienced by Zoologists in the determination of distinctive marks adequate for the separation of the genera *Antilope*, *Capra*, and *Ovis*; and then refers to the instances in which the writer has shown that the character of *Antilope* founded on the presumed absence of cavities in the cores of the horns connected with the frontal sinuses is incorrect. The value of the characters which are generally admitted by authors as distinguishing between the genera *Capra* and *Ovis* may, he conceives, be tested by a comparison of the wild race of either genus which belongs to the Himalaya.

"For the last year," Mr. Hodgson proceeds, "I have had alive in my garden a splendid specimen of the mature male of each; and I have frequently compared them together in all respects of manners and of structure. As the *Goat* in question, as well as the *Sheep*, is new, I will begin with a synoptical description of the two, and then proceed to notice the points of difference and of agreement existing between them.

Tribe CAPRIDÆ, H. Smith.

Genus CAPRA, Linn.

Species *Capra Jhāral*.—The *Jhāral* of the Nepalese.

"Affined to the *Alpine Ægagri* and to *Capra Jemlaica*. Adult male 50 inches long from snout to rump, and 33 high. Head finely formed and full of beauty and expression, clad in close short hair, and without the least vestige of a beard. Facial line straight. Ears small, narrow, erect, rounded at the tips, and striated. Eye lively. Between the *nares* a black moist skin. *Nares* themselves short and wide. Knees and *sternum* callous. Tail short, depressed, wholly nude below. Animal of compact powerful make, with a sparish, short, and bowed neck; deep barrel and chest; longish, very strong, and rigid limbs, supported on perpendicular pasterns, and high compact hoofs: false hoofs conic and considerably developed. Attitude of rest gathered and firm, with the head moderately raised, and the back sub-arched. Shoulders decidedly higher than the croup. Fore quarters superb, and wholly invested in a long, flowing, straight, lion-like mane, somewhat feathered vertically from the crown of the withers, and sweeping down below the knees. Hind quarters poor and porcine, much sloped off from the croup to the tail, and the skin much constricted between the hams behind. Fur of two sorts: the outer, hair of moderate harshness, neither wiry nor brittle, straight, and applied to the skin, but erigible under excitement, and of unequal lengths and colours; the inner, soft and woolly, as abundant as in the *Wild Sheep* and finer, of one length and colour. Horns 9 inches long, inserted obliquely on the crest of the frontals, and touching at the base with their anterior edges; subcompressed,

subtriangular, and uniformly wrinkled across, except near the tips, where they are rounded and smooth, keeled and sharpened towards the points, obtusely rounded behind; the edge of the keel neither nodose nor undulated, but smooth, or evanescently marked by the transverse wrinkles of the horns. The horns are divergent, simply recurved, and directed more upwards than backwards.

“ Colour of the animal a saturate brown superficially, but internally hoary blue, and the mane, for the most part, wholly of that hue. Fore arms, lower part of hams, and backs of the legs, rusty. Entire fronts of the limbs, and whole face and cheeks, black-brown; the dark colour on the two last parts divided by a longitudinal line of pale rufous; and another before the eye, shorter. Lips and chin hoary, with a blackish patch on either side below the gape. Tip of tail and of ears blackish. Tongue and palate, and nude skin of lips and muzzle, black. *Iris* darkish red hazel. Odour very powerful in the mature male at certain times.

“ Found in the wild state in the Kachâr region of Nepal, in small flocks or solitarily. Is bold, capricious, wanton, eminently scansorial, pugnacious, and easily tamed and acclimatised in foreign parts.

“ REMARKS. *Jhâral* is closely affined by the character of the horns to the *Alpine Ægagri*, and still more nearly, in other respects, to *Capra Jemlaica*. It differs from the former by the less volume of the horns, by their smooth anterior edge, and by the absence of the beard; from the latter, by the horns being much less compressed, not turned inwards at the points, nor nodose. *Jhâral* breeds with the *domestic Goat*, and more nearly resembles the ordinary types of the tame races than any wild species yet discovered.

Genus *Ovis*, *Linn.*

“ Species *Ovis Ndhoōr*, Mihi.—The *Ndhoōr* of the Nepalese. New? Variety of *Ovis Musmon*?

“ Closely affined to *Ovis Musmon*, of which it is probably only a variety. Adult male 48 inches from snout to rump, and 32 high. Head coarse and expressionless, clad entirely in close short hair, without beard on the chin or throat, or any semblance of mane. Chaffron considerably arched. Ears medial, narrow, erect, pointed, striated. Eye dull. Moist space between the *nares* evanescent. *Nares* narrow and long. Knees and *sternum* callous. Tail medial, cylindrico-depressed, only half nude below. Structure moderately compact, not remarkable for power. Neck sparish, bowed, with a considerable dip from the crown of the shoulders. Limbs longish, firm, but slender, not remarkable for rigidity, and supported on lax pasterns, and on hoofs lower and less compact than the *Goat's*; false hoofs mere callosities. Attitude of rest less gathered and firm, with the head lower, and the back straight. Shoulders decidedly lower than croup. Fore quarters not more massive than the hind, nor the extremities stronger. Fur of two sorts: the outer, hair of a harsh, brittle, quill-like character, serpentine internally, with the salient bows of one hair fitting into the resilient bends of another; externally straight, porrect from the skin, and very abundant; of medial uniform length all over the body; the inner coat, soft and woolly,

rather spare, and not more abundant than in the *Goat*. Horns 22 inches along the curve, inserted high above the orbits on the crown of the forehead, touching nearly at the base with their whole depth, and carrying the frontal bones very high up between them, the parietals being depressed in an equal degree*. The horns diverge greatly, but can scarcely be said to be *spirally* turned. They are first directed upwards considerably before the facial line, and then sweep downwards with a bold curve, the points again being recurved upwards and inwards. They are uncompressed, triangular, broadly convexed to the front, and cultrated to the back. Their anterior face is the widest, and is presented almost directly forwards: their lateral faces, which are rectilinear, have an oblique aspect, and unite in an acutish angle at the back. They are transversely wrinkled, except near the tips, which are round and smooth.

“ The colour of the animal is a pale slaty blue, obscured with earthy brown, in summer overlaid with a rufous tint. Head below, and inside of the limbs and hams, yellowish white. Edge of the buttocks behind and of the tail pure white. Face and fronts of the entire limbs and chest blackish. Bands on the flanks the same, and also the tip of the tail. Tongue and palate dark. Eye yellow hazel. No odour.

“ Is found in the wild state in the Kachâr region of Nepal, north of the *Jhâral*, amid the glaciers of the Himalaya, and both on the Indian and Tibetan sides of the snowy crests of that range: is sufficiently bold and scendent, but far less pugnacious, capricious, and curious than the *Jhâral*. Much less easily acclimatised in foreign parts than he is, in confinement more resigned and apathetic, and has none of the *Jhâral's* propensity to bark trees with his horns, and to feed upon that bark and upon young shoots and aromatic herbs. I have tried in vain to make the *Ndhoôr* breed with tame *Sheep*; because he will not copulate with them. The female of the species has the chaffron straight; and the horns short, erect, subrecurved, and greatly depressed. The young want, at first, the marks on the limbs and flanks, and their nose is straight.

“ REMARKS. Differs from *Ovis Musmon*, to which it is closely allied, by the decided double flexure of the horns, their presence in the females, and the want of a tuft beneath the throat.

“ Having now completed the descriptions of the *Wild Goat* and the *Wild Sheep*, I shall proceed to the exhibition of the points of difference and of resemblance between the two, beginning with the former.

Goat.

Sheep.

Whole structure stronger and more compact.	} Less so.
Limbs thicker and more rigid.	
	Feebler and more slender.

* The *Goat's* skull has the same form, but less strikingly developed; and unless I am mistaken, this form of the skull would afford a just and general mark to separate *Ovis* and *Capra* from *Cervus* and *Antelope*. There is a gradation of characters in this respect among the *Antelopes* tending to the *Caprine* type in their general structure.

Goat.

Hoofs higher and more compact.
 False hoofs well developed.
 Head smaller and finer.
 Facial line straight.
 Ears shorter and rounded.
 Tail short, flat, nude below.

Withers higher than croup.
 Fore legs stronger than hind.
 Croup sloped off.
 Odorous.

Nose moister, and *nares* short
 and wide. }

Horns of medial size, keeled,
 and turned upwards. }

Eye darker and keener.

Hair long and unequal.

Back arched.

Bears change of climate well.

Is eminently curious, capricious,
 and confident. }

Barks trees with its horns, feed-
 ing on the peel, and on aro-
 matic herbs. }

In fighting rears itself on its
 hind legs and lets the weight
 of its body fall on the adver-
 sary. }

Sheep.

Lower and less so.
 Evanescent.
 Larger and heavier.
 Chaffron arched.
 Longer and pointed.
 Longer, less depressed, and half
 nude only.

Croup higher.
 Fore and hind equal.
 Not so.
 Not so.

Less moist, longer, and narrower.

Horns very large, not keeled, and
 turned to the sides.

Paler and duller.

Short and equal.

Back straight.

Bears it ill.

Is incurious, staid, and timid.

Does not bark trees, and is less
 addicted to aromatics.

In fighting runs a-tilt, adding
 the force of impulse to that of
 weight.

“ The *Goat* and *Sheep* have in common, hair and wool; no beard; no suborbital sinuses; evanescent muzzle; no inguinal pores; horns in contact at the top of the head; knees and *sternum* callous; angular and transversely wrinkled horns; striated ears; two teats only in the females; horns in both sexes; and, lastly, incisors of precisely the same form.

“ Of the various diagnostics, then, proposed by Col. Hamilton Smith, it would seem that the following only can be perfectly relied on to separate *Ovis* from *Capra*: slender limbs; longer pointed ears; chaffron arched; *nares* long and oblique; very voluminous horns, turned laterally with double flexures. I should add myself, the strong and invariable distinction,—males not odorous,—as opposed to the males odorous of the genus *Capra*. But, after all, there are no physical distinctions at all equivalent to the moral ones so finely and truly delineated by Buffon, and which, notwithstanding what Col. H. Smith urges in favour of the courage and activity of *Sheep*, will, for ever, continue to be recognised as the only essential diagnostics of the two genera.”

September 23, 1834.

Dr. Marshall Hall, in the Chair.

A letter was read, addressed to the Secretary by John Hearne, Esq., Corr. Memb. Z.S., and dated Port au Prince, July 16, 1834. It accompanied a present of "an *Alligator* from the river Artiboniti," which is referrible to the *Crocodilus acutus*, Cuv.; and of some *Doves*. These are the *little Ground Dove* or *Ortolan* of the English residents in Hayti, *Columba passerina*, Linn.; and the *red-legged Partridge*, as it is called in that island, *Col. mystacea*, Temm. Mr. Hearne adverts to some other animals which he has observed in Hayti, and expresses his hopes of succeeding in bringing or sending them to England.

The Secretary adverted to some other animals lately added to the Menagerie, and which he regarded as interesting either in a scientific point of view, or on account of their not having been previously contained in the collection. They included the *silky Monkey*, *Midas Rosalia*, Geoff., of which a specimen has recently been presented by T. Manton, Esq.; the *Javanese Ichneumon*, *Herpestes Javanicus*, Geoff.; the *African Mouffton*, *Ovis Tragelaphus*, Geoff., presented by Sir Thomas Reade, His Majesty's Consul-General at Tunis; and a remarkably darkly coloured variety of the *European Bear*, *Ursus Arctos*, Linn., presented by R. H. Beaumont, Esq.

Among the *Birds* there have been added a pair of the *pie'd Pigeon* of New Holland, *Columba armillaris*, Temm.; a pair of the *Capercaillie* or *Cock of the Woods*, *Tetrao Urogallus*, Linn., obtained from Norway and presented to the Society by J. H. Pelly, jun., Esq.; a pair of the *Buffonian Touraco*, *Corythaix Buffonii*, Le Vaill.; and a specimen of the *naked-legged Owl* of the Indian Islands, *Ketupa Javanensis*, Less., (*Strix Ketupu*, Horsf.) presented by James Harby, Esq., and stated to have been brought from Manilla.

Among the *Reptiles* there have recently been added an interesting collection of *Tortoises* from China, presented by John Russel Reeves, Esq., of Canton, and including specimens of the *three-banded Box-Tortoise*, *Cistuda trifasciata*, Gray; of *Spengler's Terrapin*, *Geoemyda Spengleri*, Gray, (*Testudo Spengleri*, Walb.); of the *Emys Sinensis*, *Em. Reevesii*, and *Em. Bealii*, all lately described by Mr. Gray; and also of the *Platysternon megacephalum*, Gray. A *Crocodile* apparently referrible to the *Crocodilus cataphractus*, Cuv., is also at present living in the Menagerie: its nuchal plates constitute a series continuous with those of the back, but consist of only four rows instead of five, the number existing in the individual on which the species was originally founded. The specimen is stated to have been brought from Fernando Po.

Mr. Ogilby called the attention of the Meeting to a specimen of

an *Irish Otter*, which he at the same time presented to the Society in the name of Miss Anna Moody of the Roe Mills near Newtown Lemavaddy, by whom it was preserved and mounted. On account of the intensity of its colouring, which approaches nearly to black both on the upper and under surface; of the less extent of the pale colour beneath the throat as compared with the *common Otter*, *Lutra vulgaris*, Linn., as it exists in England; and of some difference in the size of the ears and in the proportions of other parts; Mr. Ogilby has long considered the *Irish Otter* as constituting a distinct species; and he feels strengthened in this view of the subject by the peculiarity of its habitation and manners. It is, in fact, to a considerable extent a marine animal, being found chiefly along the coast of the county of Antrim, living in hollows and caverns formed by the scattered masses of the basaltic columns of that coast, and constantly betaking itself to the sea when alarmed or hunted. It feeds chiefly on the salmon, and as it is consequently injurious to the fishery, a premium is paid for its destruction; and there are many persons who make a profession of hunting it, earning a livelihood by the reward paid for it and by disposing of its skin. Mr. Ogilby stated his intention of comparing it minutely with the *common Otter* as soon as he should be enabled to do so by the possession of entire subjects, and especially of attending to the comparison of the osteological structures. He added that he proposed to designate it, provisionally, as the *Lutra Roensis*, in honour of the lady by whom it was presented.

Mr. Owen read a "Description of a recent *Clavagella*," founded on the examination of an individual brought home by Mr. Cuming and imbedded in siliceous grit. The portion of rock contained the whole of the expanded cavity excavated for the abode of the animal, together with the fixed valve of its shell and about an inch of its calcareous tube: the loose smaller valve was detached from the soft parts. Mr. Owen describes in detail the fixed valve, which corresponds to the left side of the animal's body; the attachment to it of the adductor muscles, two in number; its passage into the calcareous tube by a continuance of the shelly substance; the tube itself, which communicates with the posterior part of the chamber next the side which corresponds with the ventral surface of the animal; and the free valve. He regards it as probable that the animal of this species, having penetrated into the rock for a certain distance, then becomes stationary, and limits its operations to enlarging its chamber to the extent required for the development of its ovary: this enlargement takes place in the dorsal, dextral, and anterior directions.

The soft parts of *Clavagella* form an irregularly quadrate mass, convex anteriorly, rather flattened at the sides, and slightly narrowing towards the posterior end, from which the smooth rounded *siphon* is continued. This contains the anal and branchial canals, which are separated by a strong muscular *septum*, but do not project as distinct tubes: in this respect *Clavagella* agrees with *Gastro-*

chæna and *Aspergillum*. The mantle is a closed sac, having only an opening for the passage of the *siphon* and a small slit at the opposite end for the passage of a rudimentary foot: the use of this slit in *Clavagella* is obviously different from that assigned by M. Rüppell to the corresponding structure in *Aspergillum*.

Mr. Owen describes the mantle and its structure; the *siphon*; and the thick mass of muscular fibres at the anterior part of the mantle, which forms probably one of the principal instruments in the work of excavation: he also notices the great development, as compared with the size of the animal, of the adductor muscles. He then proceeds to the *viscera*, which generally agree with the typical structure in other *Bivalves*. The digestive system, which accords with that which is usual in *Acephalous Mollusca*, is described; as are also the respiratory and circulating systems, the principal nervous *ganglia*, and the ovary.

The paper was accompanied by drawings illustrative of the several structures described in it.

The specimen described belongs to the species termed by Mr. Broderip *Clavagella lata*.

October 14, 1834.

William Yarrell, Esq., in the Chair.

A letter was read, addressed to the Secretary by Sir Robert Ker Porter, Corr. Memb. Z.S., dated Caraccas, July 24, 1834. In reference to the *Tortoises* (*Testudo Carbonaria*, Spix,) presented to the Society by the writer in the spring of the present year (see p. 41), it stated that they are regarded as a great delicacy at Caraccas, and sold as such in the market. It also stated that some eggs of *Curassows*, or *Powies*, spoken of in a previous letter, had been placed under a hen, but had not produced young, having, as Sir Robert imagines, been by some accident injured in the shell. He had, however, a few days previously to the date of his letter, placed another, just laid by the bird, and hoped to be more successful, in which case he promises to give some particulars relative to the experiment.

A letter was read, addressed to the Secretary by the Hon. Byron Cary, dated His Majesty's ship Dublin, Sept. 25, 1834, giving some particulars relative to a large specimen of the *Tortoise* from the Galapagos Island, presented by the writer to the Society. The specimen weighs 187 lbs. and measures in length, over the curve of the dorsal shell 3 feet 8½ inches, and along the ventral shell 2 feet 3½ inches, its girth round the middle being 6 feet 3½ inches. It is consequently much smaller than several specimens of the *Indian Tortoise* from the Seychelles Islands which have at different times been exhibited in the Society's Garden; the weight and measurements of one of which are given in the Proceedings of the Society for 1833, p. 81. The lateral compression of the anterior part of the dorsal shell, and the elevation of its front margin, by which the *Gallapagos Tortoise* is distinguished from the *Indian*, are in this specimen strongly marked.

The following notes by Mr. Martin of the dissection of a specimen of the *Mangue* (*Crossarchus obscurus*, F. Cuv.) were read.

"The dissection was strongly confirmatory of the justice of the position claimed for the animal, notwithstanding its plantigrade mode of progression, between the *Ichneumons* and the *Suricates*. To the latter indeed it bears in its general external aspect and characters a marked affinity; in both we find the pupil circular, and the muzzle elongated, pointed, and moveable. Nor is there much less correspondence in their general anatomy. Fortunately the notes of the dissection of two *Suricates*, which were living for a considerable period in the possession of the Society, have enabled me to make an accurate comparison. The notes to which I allude are by Mr. Owen, and will be found in the First Part of the 'Proceedings of the Committee of Science and Correspondence' for 1830-1, pp. 39 and 51.

"The *Mangue* which I had the opportunity of examining was a No. XXII. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

female, and measured in the length of its body 1 foot: the tail was imperfect. The animal was in good condition; indeed it was rather too much loaded with fat to be perfectly active. On the *abdomen* being opened the liver and the small intestines presented themselves, the latter being covered by an extensive *omentum*; the stomach was concealed beneath the liver. The liver was tripartite, with a *lobulus Spigelii*, and consisted of one large right, and two left lobes; the latter together not exceeding in size the single one on the right. On the under surface of the right lobe, near the edge, lay the gall-bladder, almost globular in shape, and measuring nearly $\frac{3}{4}$ ths of an inch from the *fundus* to the neck. It was full of dark greenish bile. At the distance of $\frac{3}{4}$ ths of an inch from the neck, the biliary duct was joined by the hepatic: the *ductus choledochus communis* then continued on for more than $\frac{1}{2}$ an inch, and entered the *duodenum* about $\frac{1}{4}$ of an inch below the *pylorus*. The spleen, flat, elongated, and narrow, occupied the usual situation, and was enveloped in a fold of *omentum*, giving, when stretched out, a width of $1\frac{1}{2}$ inch. On turning back the stomach, the pancreatic gland was seen, having a large process situated beneath the spleen and stomach; the portion immediately covered by the latter dilating and forming a ring, attached to the *duodenum* for the distance of 3 inches. In the *Suricate*, this *viscus* is very similar, both in figure and situation. Mr. Owen observes that "a transverse portion extends from the spleen behind the stomach to the *pylorus*; it then divides and forms a circle, which lies in the concavity of the great curve of the *duodenum*;" and subsequently notices its resemblance to "the neutral symbol of the entomologist ρ ." Such also is the figure of the *pancreas* of the *Mangue*.

"The stomach was very muscular, with longitudinal *striæ* along its larger curvature, and singularly contracted in the middle. It is to be observed, however, that it was perfectly empty: when distended with air, the *striæ* and contraction disappeared.

"The small intestines did not much exceed a common quill in circumference; they decreased in size from the *duodenum*, which was very delicate. The small intestines measured 4 feet $2\frac{1}{2}$ inches, and the large $4\frac{1}{2}$ inches, without bands, or *sacculi*. The *cæcum* was 1 inch in length and pointed. On each side of the *anus* were situated two follicles of the size of a small horsebean, containing a thick unctuous, but nearly inodorous matter. They opened externally on the verge of the *anus*.

"The kidneys, of which the right was rather higher than the left, were of the usual shape, and 1 inch in length. Their cortical structure was very distinct; the *tubuli* terminated in one large conical *papilla*. On the outer surface there ramified an arborescence of small veins, as in the *Cat*, but by no means so beautifully and regularly distributed. In this respect also the *Mangue* agrees with the *Suricate*, as well as with the *Viverridæ* generally. The supra-renal glands were flat and oval; their external coat was grey; and beneath this was spread an inner layer, resembling liver in colour and texture.

“The bladder was small and contracted : the *uterus* measured $\frac{1}{4}$ an inch, its *cornua* $1\frac{1}{4}$ inch, and the *vagina* $1\frac{1}{2}$ inch, its internal lining being puckered longitudinally.

“The lungs consisted of three lobes on the right, and two on the left side : in the *Suricate* there are four on the right and three on the left. The heart is obtuse at its *apex*, and of a thick rounded figure, being $\frac{3}{4}$ ths of an inch from the base to the *apex* and $1\frac{1}{2}$ in breadth across the base. The tongue was 2 inches long, smooth at the sides, but covered in the centre towards the tip with retroverted sharp bristly *papillæ* : at the base were three isolated *papillæ* forming a crescent, thus $\circ \circ \circ$. The sublingual glands were of the size of hazel-nuts. The *epiglottis* was pointed and curled forwards : the number of rings in the *trachea* was thirty-eight. The thyroid glands were situated on each side of the twelve upper rings of the *trachea* ; they were of large size, measuring $\frac{3}{4}$ ths of an inch in length. The *œsophagus* exhibited longitudinal *rugæ* along its inner surface.

“In the disproportion between the large and small intestines ; in their small circumference ; in the form of the *cæcum* ; in the venous ramifications on the surface of the kidneys ; as well as in other minor points ; we cannot fail to observe the close similarity, not alone between the *Mangue* and the *Suricate*, but between both these animals and the *Viverridæ* in general.”

A collection was exhibited of skins of *Birds*, formed by B. H. Hodgson, Esq., Corr. Memb. Z.S., in Nepal, and presented by him to the Society. These birds were brought under the notice of the Meeting by Mr. Gould, who, at the request of the Chairman, pointed out the most interesting among them, both as regarded the Society's collection, and with reference to their novelty or the peculiarities of their form. As, however, Mr. Hodgson himself purposes to describe at length the characters and habits of the several species in his proposed ‘Zoology of Nepal,’ Mr. Gould abstained from entering more particularly into those topics.

A paper was read “On *Clavagella*, by W. J. Broderip, Esq.” It was accompanied by drawings illustrative of the new species described in it.

The author commences by a history of the genus from the time when Lamarck established it for the reception of four fossil species, two of which he had previously referred to his genus *Fistulana*. A recent species was subsequently described and figured by Mr. G. B. Sowerby, in his ‘Genera of Recent and Fossil Shells,’ under the name of *Clav. aperta* ; and a second recent species, *Clav. Australis*, has since been described and figured by the same conchologist ; M. Audouin has noticed another recent *Shell* which he refers to this genus ; and some details have been published by M. Rang of an additional recent species, his *Clav. Rapa*. The collection of Mr. Cuming furnishes another recent species, the anatomy of which formed the subject of a paper read by Mr. Owen at the last Meeting of the Society ; there exists yet another in that of Mr. Isaac Lyon Goldsmid ; and another in those of Mr. Cuming and Mr. Miller.

A close examination of the recent species which he has observed has convinced Mr. Broderip that although one valve of the shell is always fixed or imbedded in the chamber formed in the hard surrounding substance, the tube is not necessarily continued into a complete testaceous clavate shape, and that consequently the character assigned by Lamarck to the genus requires emendation. The fixed valve is in all these species continued on to the tube. In Mr. Cuming's the perforated shelly plates are situated not far from the throat of the tube, one on either side; while in Mr. Goldsmid's the perforated plate is single, and seated at the anterior or greater end of the ovate chamber, being in the smaller individual joined laterally to the anterior ventral edge of the fixed valve, and in the larger one wholly isolated from it. In all the specimens the anterior edge of the fixed valve is surrounded by the naked wall of the chamber.

After remarking on the difficulty of clearly defining species where the roughness or smoothness of the surface of the shell and even its shape may depend upon the greater or less degree of hardness of the material of which the chamber is formed; where colour also is absent; and from specimens of which the tubes are broken; Mr. Broderip proceeds to suggest the following distinguishing characters. The first two may, he remarks, hereafter prove to be mere varieties, although he is strongly disposed to regard them as constituting distinct species:

CLAVAGELLA ELONGATA. *Clav. camerâ elongato-ovatâ; valvâ liberâ elongatâ, subtrigonâ, convexâ, externè concentricè valdè rugosâ, intûs nitente; umbone acuto.*

Hab. in Oceano Pacifico?

Mus. Goldsmid.

The wall of the coral chamber against which the free valve rested gives as exact an impression of the external rugosities of that valve as if the valve had been applied to a surface of wax.

CLAVAGELLA LATA. *Clav. camerâ rotundato-ovatâ; valvâ liberâ latiusculâ, subtrigonâ, subconvexâ, externè concentricè rugosâ, intûs nitente; umbone subrotundato.*

Hab. in Oceano Pacifico.

Mus. Cuming.

Both valves are nacreous internally; and the muscular impressions, especially in the fixed valve, are very strong.

CLAVAGELLA MELITENSIS. *Clav. testâ subrotundatâ, rugosâ, intûs subnitente; tubo longitudinaliter corrugato.*

Hab. ad Melitam.

Muss. Cuming, Miller.

It is not impossible, from its locality, that this may turn out to be M. Audouin's species, if that should prove to be a true *Clavagella*. M. Sander Rang's remarks, however, go far to show that a Sicilian *Shell* referred to this genus, has been incorrectly so referred, in as much as it has no fixed valve. The one described above has the fixed valve continued on to the shelly tube as in the other recent species of the genus *Clavagella*.

Mr. Broderip conjectures that *Clavagella* may be in its very young state a free *Bivalve*, floating at large until it arrives at some vacant hole that suits it, when it attaches one valve to the wall of the hole, and proceeds to secrete the tube or siphonic sheath, to enlarge the chamber according to its necessities, and to secrete the shelly perforated plate which is to give admission to the water at the practicable part of the chamber. The excavation may probably be assisted by the secretion from the glands observed by Mr. Owen, and evidently cannot be effected in the greater end of the chamber by mere mechanical attrition; but the solvent secretion must be one of extensive powers to act on such different substances as siliceous grit, the coral of an *Astræopora*, calcareous grit, and argillo-calcareous tufa, in which respectively were found the *Clav. Australis*, *Clav. elongata*, *Clav. lata*, and *Clav. Melitensis*.

Adverting to the different depths at which these several species were found, which varied from near low-water mark to sixty-six feet, Mr. Broderip remarks, that inferences as to the state of submersion of a rock during the lifetime of the fossil species which there occur, ought consequently to be made with caution by the geologist.

In conclusion he observes, that though the genus *Clavagella* is in its recent state at present rare, it is in all probability widely diffused; and suggests to collectors a careful examination of masses of coral and submerged perforated rocks with a view to the further elucidation of the habits and structure of these and other interesting animals.

October 28, 1834.

Richard Owen, Esq., in the Chair.

Living specimens were exhibited of a species of *Bee* from South America, together with portions of its Comb, contained in the fissure of a log of wood. They were presented to the Society by Mr. Bigg, who stated, in a note accompanying the specimens, that they were found about three weeks since on splitting a log of peachwood from the Brazils for the use of a dye-house, on the premises of Mr. Applegath, a calico-printer at Crayford in Kent. The wood had been previously lying in the docks, and had been perhaps eighteen months from the Brazils.

Mr. Curtis, to whom specimens were submitted for examination, states that they belong to the genus *Trigona*, Jur., and form a very pretty and apparently undescribed species.

Mr. Yarrell exhibited preparations of both sexes of *Syngnathus Acus*, Linn., and *Syngn. Typhle*, Ej., in illustration of the following extract from the manuscript notes of the late John Walcott, Esq., author of 'A Synopsis of British Birds,' 'History of Bath Fossils,' and 'Flora Britannica Indigena.' This manuscript, which is voluminous, and relates wholly to British Fishes, was written during the author's residence at Teignmouth, in the years 1784 and 1785, and has been forwarded by his son William Walcott, Esq., of Southampton, to Mr. Yarrell, for his use in a projected work on 'British Fishes.'

"*Syngnathus Acus* and *Typhle*.—The male differs from the female in the belly from the vent to the tail fin being much broader, and in having for about two thirds of its length two soft flaps, which fold together and form a false belly. They breed in the summer, the females casting their roe into the false belly of the male. This I have asserted from having examined many, and having constantly found, early in the summer, roe in those without a false belly, but never any in those with; and on opening them later in the summer there has been no roe in (what I have termed) the female, but only in the false belly of the male."

The specimens exhibited of females of *Syngn. Acus* and *Typhle* had no anal pouch, and the opened *abdomen* exposed two lobes of *ova* of large size in each. The anal pouch is peculiar to the males, and is closed by two elongated flaps. On separating these flaps and exposing the inside, the *ova*, large and yellow, were seen lining the pouch in some specimens, while in others the hemispheric depressions from which the *ova* had been but lately removed were very obvious. In each of these the opened *abdomen* exhibited true *testes*.

Mr. Walcott adds: "They begin to breed when only between 4 and 5 inches long." A specimen of *Syngn. Acus*, nearly 16 inches long, was exhibited, indicating, probably, its extreme growth. A female

of the same species, only 4 inches long, was also shown, the *abdomen* of which contained two lobes of enlarged *ova*, which, to all appearance, would have been deposited in a few days.

Specimens of males and females of *Syngn. Ophidion*, Linn., were also exhibited. In this species neither male nor female possesses an anal pouch, but the *ova* are carried by the male in hemispheric depressions on the external surface of the *abdomen*, anterior to the *anus*. All the specimens examined having these external depressions proved to be males, with the *testes* in the *abdomen* very obvious: those without external depressions proved to be all females, internally provided with two lobes of enlarged *ova*. The males of this species, when taken by Mr. Yarrell from the sea, had one *ovum* of the size and colour of a mustard-seed fixed in each cup-shaped depression, but time and the effects of a long journey had removed them. Dr. Fleming in his 'History of British Animals,' page 176, states the length of *Syngn. Ophidion* at about 5 inches: some of Mr. Yarrell's specimens measured 9 inches.

Mr. Yarrell further stated that the males of *Syngn. Acus* carry their living young in the anal pouch, even after they have been hatched there. He had been frequently told by fishermen that on opening them they had found the living young within the pouch, which they called the belly; and that if these young were shaken out into the water over the side of the boat, they did not swim away, but when the parent fish was held in the water in a favourable position, the young would again enter the pouch.

It was observed by M. Agassiz, that the fact of the males of certain species of the genus *Syngnathus* carrying the *ova* in a peculiar abdominal pouch, after their exclusion by the female, had been noticed on the Continent by Eckström, Retzius, and Marcklin; and that he had himself made the same observation.

M. Agassiz exhibited drawings of several species of *Lepisosteus*, together with some of the details of their internal organization; and, at the request of the Chairman, explained his views with regard to their systematic arrangement and structure, as well as to their relations with various genera of fossil fishes, and the coincidence of some parts of their internal anatomy with that of *Reptiles*. He described two new species observed by him in the British Museum, taking his characters principally from the form and sculpture of the scales, the presence or absence of the short rays at the base of the caudal and other fins, and the variations in the form and disposition of the teeth. In reference to their internal structure, he particularly called the attention of the Meeting to the large and regular slit by which the swimming-bladder communicates with the *pharynx*; which he regarded as bearing even a closer resemblance to the entrance of the *trachea* of the pulmoniferous *Vertebrata* in general, than the aperture by means of which the lungs communicate with the *pharynx* in the *Perennibranchiate Amphibia*. He conceived, therefore, that the anatomy of these fishes offers a conclusive argument in favour of the theory, long since proposed, that the swimming-bladder of *Fishes* is

analogous to the lungs of the other *Vertebrata*. He spoke of the number of the cæcal appendages as greater in *Lepisosteus* than in any other fish which he had dissected; and referring to certain fossil bodies by which geologists have long been puzzled, and which have been regarded as fossil worms, he stated his opinion, from the close resemblance between the two, that they are in reality the cæcal appendages of the fossil fishes, in whose company they are generally found.

Mr. Gray exhibited young shells of *Argonauta Argo* and *Arg. hi-ans*, with the view of calling the attention of the Society to a new argument in favour of the opinion that the animal (*Ocythoë*) found in the shells of this genus is parasitic. This argument is founded on the size of what Mr. Gray has termed the *nucleus* of the shell, viz. that original portion of it which covered the animal within the egg, and which is usually found to differ in surface and appearance from the remainder of the shell formed after its exclusion from the egg. In the specimens exhibited Mr. Gray described the *nucleus* as blunt, rounded, thin, slightly and irregularly concentrically wrinkled, and destitute of the radiating waves which are common to the adult shells of all the species of this genus. These waves he stated to commence immediately below the thin hemispherical tips, and he therefore entertained no doubt that those tips constituted the *nucleus* of the shell, and covered the embryo of the animal at the period of its exclusion from the egg. Judging from the size of this portion of the shell, which in one of the specimens measured nearly one third of an inch in diameter, and was consequently many times larger than the largest eggs of the *Ocythoë* found within the *Argonaut* shells, Mr. Gray inferred that it must have been produced by an animal whose eggs are of much greater magnitude. The *Ocythoë* cannot therefore, he conceived, be the constructor of the shell, and its true artificer still remains to be discovered. Mr. Gray further remarked, with reference to Poli's statement that he had observed the *rudiment* of a shell on the back of the embryo of *Ocythoë* examined by him, that he has himself uniformly found, in all the eggs of *Mollusca* which he has examined, the shell well developed, even before the development of the various organs of the embryo. With respect to the argument derived from the want of muscular attachment, he observed that the animal of *Carinaria* (to which he considered it probable that that of *Argonauta* is most nearly related), although firmly attached to the shell while living, separates from it with the greatest ease when preserved in spirits, being from its gelatinous nature very readily dissolved. These circumstances, he conceived, might fairly account for the animal of *Carinaria* having been, until very recently, unknown, and for that of *Argonauta* still remaining undiscovered.

November 11, 1834.

Dr. Marshall Hall, in the Chair.

A specimen was exhibited of a species of *Monacanthus*, Cuv., remarkable for having on each side of the body, about midway between the pectoral and caudal fins, a bundle of long and strong spines directed backwards. The species was figured in Willughby's 'Historia Piscium,' and a description of it by Lister is contained in the Appendix to that work; but it appears not to have been noticed by subsequent observers, and to have been altogether overlooked or rejected by systematic writers. Lister's specimen of the *Fish* was preserved in the collection of William Courten, the founder of the museum which became subsequently the property of Sir Hans Sloane, and eventually formed the basis of the British Museum: that brought under the notice of the Meeting belongs to the Museum of the Army Medical Department at Chatham, and was exhibited with the permission of Sir James Macgrigor. It was accompanied by a description by Staff-Surgeon Burton, which was read.

MONACANTHUS HYSTRIX. *Mon. lateribus in medio 6—7-spinosis, spinis validis longioribus.*

Guaperva Hystrix, *List., in Will. Hist. Pisc., App. p. 21. Tab. S. 21.*

"Length 7 inches. Colour black. Skin crowded with rough grains; a smooth spot behind the gills; towards the tail assuming the character of rhomboid scales, but the granular form continued over the caudal fin. On the sides, about one third of its length from the tail, is fixed a cluster of six or seven strong free spines from $\frac{1}{4}$ to 1 inch in length, capable of erection and depression.

"Dorsal spine very strong, about $1\frac{1}{4}$ inch long, subtriangular, with serrated edges, and grained, except towards the point: when not erected it is lodged in a deep groove on the back. Extremity of the *pelvis* salient, and terminating in two sharp short spines. Second dorsal fin broad and 2 inches long; anal similar, but shorter.

"In front of the eyes a small *fossa* covered with a membrane, except in its centre, where it is perforated by a minute olfactory *foramen*.

"Teeth in the upper jaw eight, the two middle incisors placed directly in front of the second pair, in a groove of which they are lodged, so that no part of these last are visible externally, except a small process at the cutting edge; the outer teeth trigonal. The teeth of the lower jaw differ materially from the generic character, their number being only four, of which the two middle ones are by far the largest in the mouth. On this account, and also on account of the nature of its covering,—which partakes of the granular character of that of *Monacanthus* and *Aluterus*, Cuv., and of the rhom-

boidal scales of *Balistes*, Ej.,—this fish might be regarded as the type of a distinct subgenus among the *Balistidæ*.

“The strong dorsal spine, the spinous processes of the pelvic bones, and the cluster of lateral spines, added to the tough indurated *epidermis* of this fish, form an armour excellently adapted for its protection against its more powerful enemies.

“It is an inhabitant of the Indian Ocean, frequenting the shores and coral reefs. The present specimen was brought from the Mauritius by Dr. Hibbert, Surgeon, 99th Regiment. This species is stated to be also found abundantly on the western coast of Australia, where it is known to the settlers by the name of “leather-jacket,”—a denomination which is probably applied to it in common with other species of *Balistidæ*.”

Mr. Gray exhibited a drawing of this specimen, and stated his intention of publishing a figure of it in the concluding Number of the ‘Illustrations of Indian Zoology,’ which is about to appear.

Mr. Gray called the attention of the Meeting to two new species of *Sturgeon*; one from China, of which he exhibited a specimen, and the other from the Mississippi, of which he showed a drawing taken from a specimen in the British Museum. The former species belongs to the same section of the genus with the *Acipenser glaber* of Marsigli, characterized by its conical muzzle, and the smooth and silvery nature of the skin between its 5 rows of plates. It was sent to England by Mr. John Russell Reeves, and is distinguished by the following characters:

ACIPENSER SINENSIS. *Acip. laevis, supernè brunneus; rostro gracili, conico, acuto, mutico; fronte arcuato; scutis seriei dorsalis 15—16, radiatim sulcatis, altè carinatis, carinà posticè unidentatâ, anterioribus gradatim minoribus, duobus ultimis ecarinatis; serierum lateralium brevioribus, carinà posticè bidentatâ; caudâ supernè serie radiorum simplicium, ad latera squamis angustis tectâ.*

Hab. in Chinâ.

Scuta dorsalia 16; lateralia superiora 40—41, inferiora 13—14.

The other species was stated by Mr. Gray to belong to a new section intermediate between the true *Sturgeons* and the *Spatulariæ*, having a broad expanded muzzle, flat above, shelving on the sides, and concave, and furnished with a central ridge beneath.

ACIPENSER CATAPHRACTUS. *Acip. brunneus, squamis parvis rugosis caudam versùs majoribus levioribusque; rostro depresso apice spatulato, carinà laterali occipiteque ad latera spinosis; scutis rugosis, acutè carinatis, carinà posticè unidentatâ; vertebralibus posterioribus muticis, lateralibus posterioribus multo majoribus.*

Acipenser cataphractus. Rapp, MSS.

Hab. in fluvio Mississippi.

The beards are 4 in number; and the hinder part of the body elongated, slender, and depressed. The snout is composed of a large number of small long bones, radiately grooved, owing perhaps to the

youth of the specimen. It has a group of six recurved spines just behind the *apex*, and a series of small spines on the ridge which runs on each side from the *apex* to the anterior angle of the eye. There is also a small blunt spine on each side of the middle of the frontal region; and two others are placed on the bones over the hinder part of the gill-flap. The latter form the commencement of a series of carinated shields. The small scales are rough; and the shields forming the lateral lines are radiately grooved, and furnished with a sharp continued keel, terminating posteriorly in a spine. The larger plates on the hinder part of the body are smooth, with a few longitudinal ridges, and emarginate at the *apex*. There are 17 plates on the dorsal ridge, of which the third is the smallest; 47 or 49 in the upper lateral series, among which the anterior are much the smallest, their length increasing gradually as they approach the tail, and this increase being more marked after passing the ventral, and again after passing the anal, fins; and 15 or 16 in the lower lateral series.

The exhibition was resumed of the *Shells* collected by Mr. Cuming on the Western Coast of South America, and among the Islands of the South Pacific Ocean. Those exhibited at the Meeting were accompanied by characters by Mr. G. B. Sowerby, and comprehended the following apparently undescribed species of the

Genus FISSURELLA.

FISSURELLA MAXIMA. *Fiss. testâ ovato-oblongâ, depressiusculâ, crassâ; intûs albâ, margine lato, undulato, pallescente fusco articulatâ; extûs radiatim sulcatâ, rugosâ, albido-cinerascente fusco radiatâ; aperturâ dorsali ovatâ: long. 5, lat. 3·4 poll.*

Hab. ad Valparaiso.

In the young shells the internal margin is proportionally broader than in those which are more fully grown: in some specimens this margin shows a very great development of crystalline structure.

Found on exposed rocks and under stones at low water.—G. B. S.

FISSURELLA GRANDIS. *Fiss. testâ ovato-oblongâ, elevatiusculâ, posticè latiore, crassâ; intûs albâ, margine latiusculo, subundulatâ, cinerascente; extûs lævigatâ, purpureo-nigrâ, radiis numerosissimis saturatioribus; aperturâ dorsali majusculâ, oblongâ, extûs latiore, anticè subdeclivi: long. 4, lat. 2·6 poll.*

Hab. ad Valparaiso et ad Insulam Chiloe sub lapidibus littoralibus.—G. B. S.

FISSURELLA LIMBATA. *Fiss. testâ ovato-oblongâ, depressiusculâ, posticè latiore, crassiusculâ; intûs albâ, margine latiusculo, subundatâ, pallescente, lined internâ purpureo-nigrâ; extûs lævigatâ, rosaceo-fuscescente, radiis rufescentibus; aperturâ dorsali elongatâ, medianè subcoarctatâ: long. 3, lat. 1·9 poll.*

Hab. ad Valparaiso.

In young shells the internal line of the margin is broader and more deeply coloured than in the more fully developed specimens. Nearly all the fully grown shells are so deeply eroded as to have lost almost

all traces of coloured rays. The younger shells, which retain the coloured rays, are found in exposed situations at low water.

A representation of the inside of this shell has been given in my 'Genera of Recent and Fossil Shells', under the name of *Fiss. picta*, Lam., from which it is nevertheless very distinct.

Found on exposed rocks.—G. B. S.

FISSURELLA BIRADIATA (Frembly MSS.). *Fiss. testâ ovatâ, anticè subacuminatâ, elevatiusculâ, crassiusculâ; intùs albâ, margine latiusculo, purpurascenti-fusco; extùs radiatim striatâ, purpurascenti-fuscâ, plerumque radiis duobus (utroque latere unico) pallescentibus; aperturâ dorsali oblongâ: long. 3·8, lat. 2·7 poll.*

Hab. ad Valparaiso sub lapidibus littoralibus.

In this, as well as in several others, the margin varies somewhat in width; it is, however, generally broader in the young shells. The fully grown specimens sometimes lose the two light-coloured rays.

Found also at Iquiqui in Peru.—G. B. S.

FISSURELLA LATA. *Fiss. testâ ovali, elevatiusculâ, crassiusculâ; intùs albâ, margine latiusculo, pallescente, rosaceo-maculato; extùs cinerascete, radiatim costellatâ, costellis subtuberculatis, radiis coloratis purpureo-rufis; aperturâ dorsali ovato-oblongâ: long. 3·3, lat. 2·5 poll.*

Hab. ad Insulam S. Mariæ, Chilensis.

This species approaches, in form and colouring, very nearly to *Fiss. picta*, Lam.

Found in exposed places.—G. B. S.

FISSURELLA PULCHRA. *Fiss. testâ ovato-oblongâ, depressâ, anticè angustiore, crassiusculâ; intùs albâ, margine latiusculo, subundulato, purpurascenti-fusco; extùs purpureo-cinerascete, radiis rufo-purpureis maculisque albis et violaceis concinnè pictâ; aperturâ dorsali centrali, posticè inclinatâ: long. 2·5, lat. 1·6 poll.*

Hab. ad Valparaiso.

Obs. Testa junior radiatim subcostellata.

Variat testâ totâ extùs purpurascenti-fuscâ, unicolore.

Found on the rocks.—G. B. S.

FISSURELLA ORIENS. *Fiss. testâ ovato-oblongâ, depressâ, crassiusculâ; intùs albâ, margine angustiore, plerumque pallescente; extùs pallidâ fusco nigro vel roseo radiatâ; aperturâ dorsali oblongâ, medianè latiore: long. 2·7, lat. 1·6 poll.*

Hab. ad Insulam Chiloe sub lapidibus littoralibus.

Variat testâ extùs obsoletè pictâ, margine interno paullò latiore.

Hab. ad Valparaiso, rupibus adhærens.—G. B. S.

FISSURELLA CHILENSIS. *Fiss. testâ ellipticâ, depressâ, radiatim costellatâ, costellis rugosis; intùs albâ, margine lato, pallescente, nonnunquam fusco maculato; extùs cinerascete, radiis fuscis pallidis plerumque pictâ; aperturâ dorsali oblongâ, subcentrali: long. 2·4, lat. 1·8 poll.*

Hab. ad Valparaiso.

Found on rocks in exposed situations at low water.—G. B. S.

FISSURELLA OBSCURA. *Fiss. testâ ovato-oblongâ, radiatim costatâ, costellis obtusis, latiusculis; intûs virescente, margine undulato, crenulato, pallidiore; extûs coloribus variis radiatim pictâ, punctis nigris nonnullis prope aperturam dorsalem radiantibus; aperturâ dorsali subelongatâ, medianè latiore, rimâ internâ rufo marginatâ: long. 1·1, lat. 0·7 poll.*

Hab. ad Insulas Gallapagos sub lapidibus littoralibus.—G. B. S.

FISSURELLA VIRESCENS. *Fiss. testâ ovatâ, elevatiusculâ, radiatim costatâ et striatâ; intûs virescente, margine pallidiore, undulato et crenulato; extûs pallidè virescente fusco-virescente obscurè radiatâ, margine costellis crenato; aperturâ dorsali oblongâ, extûs utrinque coarctatâ: long. 1·8, lat. 1·4 poll.*

Hab. ad Panamam.

Found in exposed situations at low water.—G. B. S.

FISSURELLA NIGROPUNCTATA. *Fiss. testâ ovatâ, elevatiusculâ, anticè angustiore, costellato-radiatâ; intûs virescente, margine pallidiore, crenulato, nigro punctato; extûs pallidè virescente, punctulis elongatis nigris confertim digestis radiatâ; aperturâ dorsali oblongâ, lateribus extûs subconnatis: long. 1·6, lat. 1·1 poll.*

Hab. ad Insulas Gallapagos.

Variat testâ intûs albâ; rimâ aperturæ dorsalis nigro marginatâ.

Hab. ad Insulam Lobos sub lapidibus littoralibus.—G. B. S.

FISSURELLA MACROTREMA. *Fiss. testâ ovato-oblongâ, elevatiusculâ, anticè angustiore, radiatim striatâ; intûs virescente, margine nigro variegato; extûs plerumque virescente rufo fusco vel nigrescente radiatâ; aperturâ dorsali elongatâ, lateribus extûs coarctatis, utrinque unidentatis: long. 1·4, lat. 0·9 poll.*

Hab. ad Insulas Gallapagos.

Variat testâ extûs purpurascenti-nigrâ.

Hab. ad Insulas Gallapagos.

Variat etiam testâ extûs virescente, radiis rufescentibus obscuris.

Hab. ad Lambeyeque.

Variat iterum testâ extûs rosaceo-virescente, radiis rufis; aperturæ dorsalis margine interno roseo.

Hab. ad Insulam Lobos sub lapidibus littoralibus.—G. B. S.

FISSURELLA AFFINIS, Gray. *Fiss. testâ ovato-oblongâ, elevatiusculâ, anticè angustiore, radiatim plûs minûsve muricatim striatâ, nonnunquam ferè levigato-striatâ, plerumque purpurascenti-nigrâ; intûs albâ, margine angusto, nigricante; aperturâ dorsali parvâ, ovali: long. 1·7, lat. 1·2 poll.*

Hab. ad Insulas Mexillones et Lobos, et ad Iquiqui.

Variat testâ rufescenti-nigrâ.

Hab. ad Valparaiso.

Obs. Testæ juniores pallidæ, radiatim pictæ.—G. B. S.

FISSURELLA MICROTREMA. *Fiss. testâ ovatâ, depressiusculâ, radiatim scabroso-striatâ; intûs virescente, margine angustissimo, nigricante; extûs fuscâ, obscurè subradiatim coloribus variis pictâ;*

aperturá dorsali minimá, margine limbi interni nigricante: long. 0·9; lat. 0·6 poll.

Hab. ad Real Llejós, Americæ Centralis.

The dorsal perforation in this species is so small, and the coloration so dark, that it is difficult at first sight to perceive that it is really a *Fissurella*.

Found under stones.—G. B. S.

FISSURELLA INÆQUALIS. *Fiss. testá oblongá, tenui, subdepressá, latere antico brevi, postico longo; intùs albicante, margine albo nigroque vario, crenulato; extùs radiatim striatá, concinnè decussatá, olivacè albicante subradiatim variegatá; aperturá dorsali anticá, oblongá, utrinque bidentatá: long. 1·1, lat. 0·6 poll.*

Hab. ad Guacomayo et ad Insulas Gallapagos sub lapidibus littoralibus.—G. B. S.

FISSURELLA PICA. *Fiss. testá oblongá, tenui, subdepressá, latere antico brevi, postico longo; intùs albicante, margine crenulato; extùs radiatim striatá, concinnè decussatá, albá olivaceo variegatá; aperturá dorsali anticá, ellipticá, ferè circulari, parvè: long. 1·, lat. 0·57 poll.*

Hab. ad Sanctam Elenam et ad Insulas Gallapagos.

Variat testá albicante, radiatim olivaceo fasciatá.

Found on dead shells in from six to eight fathoms water.—G. B. S.

FISSURELLA CHEMNITZII. *Fiss. testá ovato-oblongá, depressiusculá, crassiusculá, lateribus subcompressis, extremitatibus levatis; intùs albá, impressione musculari prope marginem conspicuá; extùs radiatim subsulcatá, subdecussatá, palléscente roseo subradiatá; aperturá dorsali magná, ovali, rimá interná latá: long. 2·2, lat. 1·4 poll.*

Hab.?

The only specimen I have ever seen of this species was in the Tankerville Collection, from which, after several vicissitudes, it has at length found its way to Mr. Cuming's.

This remarkable shell is represented by Martini (I. t. xi. f. 100), whose figure is cited by Lamarck as a representation of *Fiss. Græca*.—G. B. S.

FISSURELLA LATIMARGINATA. *Fiss. testá ovato-oblongá, depressá, crassiusculá, anticè angustiore; intùs albá, margine lato rufescenti-nigro, crenulato; extùs radiatim creberrimè striatá, rufescenti-nigrá; aperturá dorsali oblongá: long. 2·8, lat. 1·8 poll.*

Hab. ad Valparaiso et ad Iquiqui.

Found on the rocks.—G. B. S.

FISSURELLA TRAPEZINA. *Fiss. testá subtrapeziformi, rotundato-angulatá, anticè angustiore, depressá, extremitatibus levatis; intùs albá, impressione musculari prope marginem remotá, margine incrassato; extùs concentricè subsulcatá, pallidá fusco radiatá; aperturá dorsali magná, latá, anticè latiore: long. 0·95, lat. 0·8 poll.*

Hab. ad Caput Bonæ Spei.

This exceedingly rare species has existed in our collections for many years.—G. B. S.

FISSURELLA ÆQUALIS. *Fiss. testá oblongá, depressá, extremitatibus ferè æqualibus; intùs albá, margine incrassato, impressione musculari prope marginem remotá; extùs lævi, albicante fusco radiatá, vel fusca albicante radiatá; aperturá dorsali magná, oblongá, latá: long. 0·85, lat. 0·5 poll.*

Hab. ad Sanctam Elenam.

Found on dead shells in from six to ten fathoms.—G. B. S.

FISSURELLA FULVESCENS. *Fiss. testá oblongá, depressá, fulvescente, extremitate anticá angustiore; intùs lacted, margine subincrassato, subreflexo; extùs lævigatá, radiatim substriatá et rufo pictá; aperturá oblongá, lateribus obsolete bidentatis: long. 1·6, lat. 0·9 poll.*

Hab. ad Valparaiso sub lapidibus littoralibus.—G. B. S.

↗ *FISSURELLA NIGRITA.* *Fiss. testá ovali, depressá, lateribus subcompressis, extremitatibus levatis; intùs albá, marginibus postico lateralibusque incrassatis; extùs nigrá, radiatim striatá; aperturá dorsali magná, ovali, margine lævi, albo: long 1·, lat. 0·6 poll.*

Hab. ?—G. B. S.

FISSURELLA ASPERA. *Fiss. testá ovali, altiusculá, asperá, posticè longiore; intùs cinerascete, margine albo, crenulato, extùs costellis numerosis radiantibus decussatim muricatis; aperturá dorsali circulari ante verticem elevatam positá: long. 1·, lat. 0·8 poll.*

Hab. ad Pacosmayo.—G. B. S.

FISSURELLA ASPERELLA. *Fiss. testá ovali, depressiusculá, asperellá; intùs virescente, margine crenulato; extùs cinerascete, striis numerosis radiantibus, radiisque coloratis rufo-cinerascentibus; aperturá dorsali oblongá, dente utrinque extùs elevato: long. 0·85, lat. 0·5 poll.*

Hab. ad Insulam Lobos sub lapidibus littoralibus.—G. B. S.

FISSURELLA MUTABILIS. *Fiss. testá ovato-oblongá, coloribus variis plerumque subradiatim pictá, altiusculá, posticè longiore; intùs albá, margine lævi; extùs radiatim striatá; aperturá dorsali ovato-elongatá, medio plerumque latiore: long. 1·, lat. 0·55 poll.*

Hab. ad Caput Bonæ Spei.

Many specimens of this species were among the late Mr. G. Humphreys' collections, labelled by him "Brazil? Thalacker."—G. B. S.

FISSURELLA PANAMENSIS. *Fiss. testá ellipticá, elevatá, decussatá, posticè longiore; intùs lactescente, margine crenulato; extùs costellis radiantibus decussatis, plerumque muricatis, albicante cinerascenti-fusco variè pictá; aperturá dorsali minimá, subovali: long. 0·6, lat. 0·4 poll.*

Hab. ad Panamam.

Found on dead shells in from six to ten fathoms.—G. B. S.

FISSURELLA RUPPELLII. *Fiss. testá oblongo-ovatá, elevatá, decussatá, lateraliter subdepressá, posticè longiore; intùs albd, margine crenulato; extùs albicante, radiis plerumque nigris, nonnquam viridescenti-nigris, concinnè pictá, costis costellisque alternantibus submuricatis radiantibus ornatá; aperturá dorsali parvâ, ovatâ, posticè subquadratâ, anticè infra verticem positâ, intùs posticè depressione distinctâ: long. 0·9, lat. 0·6 poll.*

Hab. ad Insulam Nevis, *Capt. Powers*: in Sinu Arabico, *Rüppell*.

A specimen of this pretty species was lately obtained by Mr. Cuming from M. Rüppell. About twenty were in the collections of the late Mr. G. Humphreys.—G. B. S.

FISSURELLA CLYPEUS. *Fiss. testá ovatâ, depressâ, crassiusculâ, pallescente fusciscenti-nigro radiatâ; intùs albd, margine subcrenato, pallescente nigro articulado; extùs radiatim subcorrugatâ; aperturâ dorsali oblongâ: long. 1·15, lat. 0·75 poll.*

Hab. ad Sanctam Elenam.

A single specimen is in Mr. Cuming's Collection.—G. B. S.

FISSURELLA CRENIFERA. *Fiss. testá ovato-oblongâ, subdepressâ, posticè latiore, subquadratâ; intùs albd, margine incrassato, crenato et crenulato; extùs radiatim costatâ et striatâ, radiatim varriè pictâ, costis muricatis; aperturâ dorsali oblongâ, medianè subcoarctatâ, extùs dente duplicato laterali munitâ: long. 0·6, lat. 0·3 poll.*

Hab. ad Real Llejos sub lapidibus littoralibus.—G. B. S.

A Letter was read, addressed by Capt. P. P. King, R.N., Corr. Memb. Z.S., to W. J. Broderip, Esq., and dated New South Wales, April 13, 1834. It gave some account of the Oceanic Birds observed during the late voyage of the writer from Europe to New South Wales, and more particularly of those of the genus *Diomedea*, Linn.

“ From the meridian of the island of Tristan d'Acunha to that of the island of St. Paul's, on about the parallel of 40° of south latitude, we were daily surrounded by a multitude of oceanic birds.—Of the *Petrel* tribe the *Cape Pigeon*, *Procellaria Capensis*, Linn., was most abundant; but the *Proc. vittata* (vel *cærulea*) frequently was observed; as was also a small black *Petrel* which I do not recollect to have before seen.

“ Of the genus *Diomedea* the species which I regarded as the *spadicea*, *chlororhynchos* and *fuliginosa* of Authors, were the most remarkable. Near Tristan d'Acunha the first (*Diom. spadicea*) most abounded: between the Cape and the longitude of 30° East the second (*Diom. chlororhynchos*) became more numerous: and in the neighbourhood of St. Paul's their place was supplied by the *Diom. fuliginosa*. Where one species abounded, the others were only occasionally seen; from which it may be inferred that each species breeds in distinct haunts. Occasionally two or three varieties of the *Diom.*

exulans, Linn., the large wandering *Albatross*, attended the ship, but they rarely remained beyond the day. *Diom. exulans* varies very much in plumage; generally, however, the head, neck, back, and wings are more or less mottled grey, and the breast, *abdomen*, vent, and *uropygium* snowy white; the bill is horn-coloured and the feet yellow.—We saw a bird that might be referred to M. Lesson's *Diom. epomophora*, if that is really a distinct species.—Another of very large size was near us for two days, which, with the exception of the back of the wings and tips of the under side of the pen feathers and extremity of the tail being black, was of a snowy white colour.”

Capt. P. P. King transmitted with his Letter characters and descriptions of three of the species of *Albatross* observed by him, including those which he regarded as the *Diomm. spadicea* and *chlororhynchos*; together with drawings of these two species. The descriptions were read, and the drawings exhibited. The former agree essentially with the descriptions from the same specimens, recently published in his ‘Wanderings in New South Wales,’ &c., by Mr. George Bennett, who was a fellow voyager with Capt. King. The reference of these to the species quoted is, however, provisional only, as they differ in some important particulars from the original descriptions of those species: it is therefore probable that they are rather to be viewed as indicating races hitherto unnoticed by zoologists.

Mr. George Daniell stated some facts that had fallen under his observation with reference to the habits and economy of two British species of *Bats*, the *Pipistrelle*, *Vespertilio Pipistrellus*, Geoffr., and the *Noctule*, *Vespertilio Noctula*, Schreb., dwelling more particularly on those connected with the feeding of the former, and with the period of gestation and mode of parturition of the latter.

With regard to the former species, he stated that in July 1833 he received five specimens, all of pregnant females, from Elvetham, in Hampshire. Many more were congregated together with them in the ruins of the barn in which they were taken, but all the rest escaped. They had been kept in a tin powder canister for several days, and on being turned loose into a common packing-case, with a few strips of deal nailed over it to form a cage, they exhibited much activity, progressing rapidly along the bottom of the box, ascending by the bars to the top, and then throwing themselves off as if endeavouring to fly. They ate flies when offered to them, seizing them with the greatest eagerness, and devouring them greedily, all of them congregating together at the end of the box at which they were fed, and crawling over, snapping at, and biting each other, at the same time uttering a grating kind of squeak. Cooked meat was next presented to them, and rejected; but raw beef was eaten by them with avidity, and with an evident preference for such pieces as had been moistened with water. This answered a double purpose: the weather being warm, numbers of *blue-bottle Flies*, *Musca vomitoria*, Linn., were attracted by the meat; and on approaching within range of the bat's wings were struck down by their action,

the animal itself falling at the same moment with all its membranes expanded, and cowering over the prostrate fly, with its head thrust under in order to secure its prey. When the head was again drawn forth, the membranes were immediately closed, and the fly was observed to be almost invariably taken by the head. Mastication appeared to be a laboured operation, consisting of a succession of eager bites or snaps, and the sucking process (if it may be so termed) by which the insect was drawn into the mouth being much assisted by the looseness of the lips. Several minutes were employed in devouring a large fly. In the first instance the flies were eaten entire; but Mr. Daniell afterwards observed detached wings in the bottom of the box. These, however, he never saw rejected, and he is inclined to think that they are generally swallowed. A slice of beef attached to the side of the box was found not only to save trouble in feeding, but also by attracting the flies to afford good sport in observing the animals obtain their own food by this new kind of bat-fowling. Their olfactory nerves appear to be very acutely sensible. When hanging by their posterior extremities, and attached to one of the bars in front of the cage, a small piece of beef placed at a little distance from their noses would remain unnoticed; but when a fly was placed in the same situation they would instantly begin snapping after it. The beef they would eat when hungry; but they never refused a fly. In the day-time they sometimes clustered together in a corner; but towards evening they became very lively, and gave rapid utterance to their harsh, grating notes. One of them died on the fifth day after they came into Mr. Daniell's possession; two on the fourteenth: the fourth survived until the eighteenth; and the fifth until the nineteenth day. Each was found to contain a single *fetus*.

On the 16th of May, 1834, Mr. Daniell procured from Hertfordshire five specimens of the *Vespertilio Noctula*, four females and one male. The latter was exceedingly restless and savage, biting the females, and breaking his teeth against the wires of the cage, in his attempts to escape from his place of confinement. He rejected food and died on the 18th. Up to this time the remaining four continued sulky; but towards evening they ate a few small pieces of raw beef, in preference to flies, beetles, or gentles, all of which were offered to them: only one of them, however, fed kindly. On the 20th one died, and on the 22nd two others, each of which was found to be pregnant with a single *fetus*. The survivor was tried with a variety of food, and evincing a decided preference for the hearts, livers, &c. of fowls, was fed constantly upon them for a month. In the course of this time large flies were frequently offered to her, but they were always rejected, although one or two *May Chafers*, *Melolontha vulgaris*, Fab., were partially eaten. In taking the food the wings were not thrown forward as in the *Pipistrelle*; and the food was seized with an action similar to that of a dog. The water that drained from the food was lapped, but the head was not raised in drinking, as Mr. Daniell had observed it to be in the *Pipistrelle*. The animal took considerable pains in cleaning herself, using the posterior ex-

trémities as a comb, parting the hair on either side from head to tail, and forming a straight line along the middle of the back. The membrane of the wings was cleaned by forcing the nose through the folds and thereby expanding them. Up to the 20th of June the animal fed freely, and at times voraciously, remaining during the day suspended by the posterior extremities at the top of the cage, and coming down in the evening to its food: the quantity eaten sometimes exceeded half an ounce, although the weight of the animal itself was no more than ten drachms. On the 23rd, Mr. Daniell, observing her to be very restless, was induced to watch her proceedings. The uneasiness was continued for upwards of an hour, the animal remaining during all this time in her usual attitude suspended by the posterior extremities. On a sudden she reversed her position, and attached herself by her anterior limbs to a cross wire of the cage, stretching her hind legs to their utmost extent, curving the tail upwards, and expanding the membrane interposed between it and the posterior extremities, so as to form a perfect nest-like cavity for the reception of the young. In a few moments the snout of the young one made its appearance, and in about five minutes the whole of its head was protruded. The female then struggled considerably until the extremities of the *radii* had passed, after which the young one by means of a lateral motion of its fore limbs relieved itself. It was born on its back, perfectly destitute of hair, and blind; and was attached by an umbilical cord of about two inches in length. The female then licked it clean, turning it over in its nest, and afterwards resuming her usual position, and placing the young in the membrane of her wing, proceeded to gnaw off the umbilical cord and eat the *placenta*. She next cleaned herself, and wrapped up the young so closely as to prevent any observation of the process of suckling. The time occupied in the birth was 17 minutes. At the time of its birth the young was larger than a new-born mouse, and its hind legs and claws were remarkably strong and serviceable, enabling it not only to cling to its dam, but also to the deal sides of the cage. On the 24th the animal took her food in the morning, and appeared very careful of her young, shifting it occasionally from side to side to suckle it, and folding it in the membranes of the tail and wings. On these occasions her usual position was reversed. In the evening she was found dead; but the young was still alive, and attached to the nipple, from which it was with some difficulty removed. It took milk from a sponge, was kept carefully wrapped up in flannel, and survived eight days, at the end of which period its eyes were not opened, and it had acquired very little hair. From these observations it is evident that the period of gestation in the *Noctule* exceeds thirty-eight days.

Mr. Daniell also exhibited skeletons of the male and female of the *Pipistrelle* and *Noctule Bats*, forming part of his own collection, for the purpose of pointing out a peculiarity in the female, connected, as he conceives, with the mode of parturition just described. This peculiarity consists of a prolongation of the *os calcis* along the mar-

gin of the membrane extended between the hinder extremities and the tail, of much greater length and strength in the female than in the male. By means of this process Mr. Daniell believes the female to be capable of giving greater tension to the pouch formed of that membrane for the reception of the young in the act of parturition.

November 25, 1834.

William Yarrell, Esq., in the Chair.

A Letter was read, addressed to the Secretary by Keith E. Abbott, Esq., and dated Trebizond, June 20, 1834. It referred to a collection of skins of *Birds* made by the writer in his immediate neighbourhood, and presented by him to the Society. The number of species contained in the collection is twenty, one only of which was comprised among those previously transmitted by Mr. Keith Abbott, and exhibited to the Society at its Meeting on June 24, 1834. Mr. Abbott states that he proposes to continue the collection of such zoological subjects as he can procure in the neighbourhood of Trebizond, for the purpose of transmitting them to the Society.

The *Bird-skins* presented by Mr. Keith Abbott were exhibited, and Mr. Gould, at the request of the Chairman, brought them severally under the notice of the Meeting, observing on each of them as regarded its geographical distribution. The exhibition was regarded as a continuation of that which took place on June 24, (page 50,) and comprised the following species not then enumerated, making in the whole fifty-three species observed in the vicinity of Trebizond.

Falco Tinnunculus, Linn. Inhabiting Europe generally, and the adjacent continents of Asia and Africa, but not America.

Otus vulgaris, Cuv. Inhabiting Europe generally, and found also in India and Africa.

Sylvia Rubecula, Linn. Mr. Gould has no recollection of having seen this familiar bird before, either from Asia or Africa.

Emberiza Cia, Linn. Inhabiting the southern provinces of Europe and the high lands of India. It does not visit England, nor has it been seen from Africa.

Alauda arvensis, Linn. Inhabiting Europe generally. Mr. Gould has no recollection of having seen it in collections either from India or Africa, but it doubtless inhabits the border lands of the latter continent as well as of Asia.

Corvus Monedula, Linn. This bird is principally confined to Europe: it does not occur in America. A species nearly allied inhabits India.

Picus medius, Linn. A common species in Norway, Sweden, and part of the central portions of Europe; but not hitherto observed in collections from India or Africa.

Ardea Garzetta, Linn. Inhabiting the southern portions of Europe: it is also found in India and Africa, but not in America. It was once common in England.

Scolopax major, Linn. Inhabiting Europe generally, but probably not America. Mr. Gould has not yet seen it from India.

Tringa variabilis. This bird is very generally dispersed, being

common both in America and Europe: Mr. Gould has also seen it from India and Africa. It breeds in England.

Charadrius Pluvialis, Linn. Inhabiting Europe and the adjoining portions of Africa and Asia, but not America.

Charadrius Himantopus, Linn. Inhabiting Europe, particularly the southern parts, and Asia and Africa, but not America; its place in the latter continent being filled by a species nearly allied to it. It occasionally visits England.

Anas Querquedula, Linn. Inhabiting India as well as Europe: common in the Himalayan range.

Anas Fuligula, Linn. Found in all temperate countries of the old continent, but not hitherto in America.

Clangula vulgaris, Flem. Though common in England during the winter, the proper locality of this bird is in the high northern latitudes. Mr. Gould has not previously seen a specimen from so southern a *habitat* as the present.

Mergus Albellus, Linn. Similarly circumstanced with the last, although apparently still more arctic, as it visits England only in severe winters.

Podiceps cristatus. Found in nearly all the temperate regions of the globe.

Mr. Gray exhibited a specimen of a *Reptile* from New South Wales, which he regarded as constituting the type of a new genus nearly related to *Bipes*, Latr. He characterized it under the name of

LIALIS.

Caput elongatum, fronte plano, squamis parvis subimbricatis vestitum: *irides* lineares, verticales: *ures* oblongæ, conspicuæ.

Corpus subcylindricum, attenuatum: squamis dorsalibus ovatis, convexis, lævibus; ventralium seriebus duabus intermediis majoribus.

Pedes duo, postici, obsoleti, acuti, ad basin 2—3-squamati.

Anus subposticus: *squamæ præanales* parvæ; *pори subanales* utrinque quatuor per paria dispositi.

This genus is very nearly allied to *Pygopus*, Merr., but may be readily distinguished from it by the characters above given. In *Pygopus* the head is short, more rounded in front, and covered with regular shields: the pupil is subcircular: the feet are broad, ovate, blunt, and covered with three rows of scales: the vent has five large oblong scales in front of it: and the subanal pores form a continuous series.

LIALIS BURTONIS. *Li. suprâ pallidè cinerascenti-brunnea, nigro minutissimè punctata; subtùs pallidè cacaotico-brunnea; strigâ albâ utrinque a labio superiore supra oculos per nucham, alterâque latiore a labio superiore per latera ad caudæ apicem ductis.*

Junior. *Strigis colli lateralibus obsoletis.*

Obs. Epidermide remotâ subalbida est strigis lactescentibus.

Hab. in "Novâ Cambriâ Australi." Dr. Mair.—Muss. Chatham et Brit.

The dotting on the upper surface is produced by two or three black points on each of the scales. The upper streak passes along the keels on each side of the face and terminates on the back of the neck. The lower streak separates the dark colour of the under, from the pale of the upper, surface, and is edged beneath along its whole extent by a narrow brown line; in its anterior portion it is brown above.

The scales are smooth, and marked with four slight lines. The front lower labial plate is rather larger, with one pair of small mental plates and an odd one behind it: there are four pairs of long triangular arched scales on each side of the lower jaw, of which the anterior is small and the posterior the largest, each with a small linear scale at its outer tip, which is next the small, broad, low labial plates; the hinder ones having two or three series of broad low plates under them. The dorsal scales are margined. The superciliary plates are triangular, and of moderate size. The scales of the front of the muzzle are very small, with two odd ones behind them, and one in the middle between the nostrils. The eyes are circular, and surrounded by a series of small scales. Eyelids none?

Mr. Gray also exhibited a specimen of the *New Holland Ibis* of Dr. Latham, for the purpose of directing the attention of the Meeting to the spatulate form of the feathers of its neck; a form of feather which he believes not to have been previously recorded as occurring in any *Grallatorial Bird*. In this instance they are elongated, lanceolate, and bear some resemblance to straws. The specimen was obtained from the neighbourhood of Macquarrie River.

Mr. Gray subsequently exhibited adult specimens of the *Geoemyda spinosa* and *Emys platynota*, two species of *fresh-water Tortoise* recently described by him from young individuals at the Meetings of the Society on June 24 and August 26 (pages 54 and 99). He pointed out in detail the peculiarities of the adult animals and shells, which he is about to describe in his 'Synopsis of Indian Animals'; and demonstrated on the specimen of the former the existence of those characters on which he had founded the genus *Geoemyda*, and which he had previously had occasion to observe in *Ge. Spengleri* alone,—his knowledge of the animal of *Ge. spinosa* having at the time of his proposing the genus been limited to the figure published by Mr. Bell.

In the adult individual exhibited the *sternum* was concave; and Mr. Gray, in calling particular attention to this point, took occasion to remark on it as evidencing, in an additional character to those already adverted to by him, the affinity of *Geoemyda* to the *Land Tortoises*, that genus and the genus *Cistuda*, Say, being the only genera among the *Emydidæ* that possess the concavity of *sternum* which is common to most of the species of *Testudinidæ*.

A Paper was read "On *Nycteribia*, a genus of wingless *Insects*, by J. O. Westwood, Esq., F.L.S., &c.'

The author commences by remarking on the existence of certain

groups of animals, generally limited in extent, which exhibit in their organization, with reference to the groups to which they naturally belong, such anomalies as have constantly proved a source of perplexity to the systematists who have endeavoured to assign to them their real place in the system of nature. In many instances the anomaly involves the transition from the structure of one group to that of the adjoining ones; such instances constituting the osculant groups of Mr. W. S. MacLeay in his 'Horæ Entomologicæ'. Of these osculant groups some exist between the great divisions of the animal kingdom; others among the classes of which each of these great divisions is composed; others again between the orders, the families, and the minor subdivisions. The genus *Nycteribia* is thus osculant not between the families or even the orders of a class, but between two of the classes themselves of the *Annulose* Sub-kingdom—the *Arachnida* and the *Haustellata*. It is remarkable, moreover, for being exclusively confined to a parasitic existence on that equally anomalous group, the *Chiroptera* among the *Mammalia*.

Notwithstanding the comparatively unattractive appearance of the insects of this genus, the singular peculiarities of their structure have drawn upon them the attention of Latreille, Hermann, Dr. Leach, M. Léon Dufour, and Mr. Curtis, who have severally contributed much to the general stock of information respecting them. But the minuteness of the objects themselves, their unfitness for accurate examination when dried and shrivelled as specimens usually are in cabinets, their comparative rarity, and other causes, have rendered the descriptions of those distinguished entomologists in some instances unsatisfactory; and it is with the view of fully elucidating the organization of the genus and of adding to its history such facts as he has been enabled to ascertain, that Mr. Westwood offers to the Society his account of *Nycteribia*, to which he adds a Synopsis of the whole of the species that have hitherto been observed, including the characters of several not hitherto described. He enumerates the sources from whence his materials have been derived; and then proceeds to describe in great detail the structure of a new species brought from Dukhun by Col. Sykes,—a species peculiarly adapted for the purpose, both on account of its comparatively large size, $2\frac{1}{2}$ lines in length, and of the fitness of the individuals for minute examination owing to their having been preserved in spirit. Of this species he has examined three individuals, all of which are females in different stages of gestation. From the *abdomen* of the one which was most advanced Mr. Westwood extracted without difficulty a hard organized white mass, nearly as large as the *abdomen* itself, of an oval form, with traces of five articulations on the sides of the body, and having at its broader end three small circular spots placed in a triangle, with two smaller ones seated at a greater distance from them. That this was the young of the *Nycteribia* in its *pupa* state cannot, he conceives, be doubted: and it may consequently be regarded as proved that these insects are pupiparous, as has indeed been conjectured from their evident connexion with the *Hippoboscidæ*.

The whole of the external organization of Col. Sykes's *Nycteribia*

is described by Mr. Westwood in the greatest detail, and with continual references to those portions of the descriptions published by his predecessors, which are either vague, or incorrect, or in which they are contradictory to each other. The principal points which he has endeavoured to elucidate, in addition to the transformations which these insects undergo, are the distinction of the sexes, and consequently the sexual characters and the different organization of the *abdomen* in the sexes; the structure of the mouth, *antennæ*, and eyes; the separation of the *metasternum* and the *abdomen*; the situation and construction of the spiracles; and the nature of the serrated organs between the base of the anterior and intermediate legs. The sexual distinctions appear especially to have been misunderstood, and the author takes great pains to explain them in each of the species respectively which he has been enabled satisfactorily to examine.

Mr. Westwood concludes his Paper by a Synopsis of the Species of the

Genus NYCTERIBIA.

NYCTERIBIA SYKESII. *Nyct. rufo-picea, thoracis tegumento dorsali abdomineque obscurè albicantibus; hoc tuberculis minutissimis nigris undique tecto tuberculis quatuor majoribus in quadrangulo centrali dispositis, segmentis (unico basali excepto) destitudo, apiceque pilis rigidis ferrugineis elongatis oblecto; pedibus elongatis subcompressis paullo dilatatis, breviter setosis; femoribus magis ferrugineis, coxis anticis elongatis tibiisque apicem versus attenuatis; pectinibus thoracis elongatis; oculis e tuberculis quatuor compositis. (♀)*

Long. corp. lin. 2 $\frac{1}{2}$.—Species maxima.

Hab. in Indiâ Orientali.—In Mus. D. Sykes.

NYCTERIBIA HOPEI. *Nyct. abdomine concolore nitido, in medio obsolete 5-articulato, ovato-conico-depresso, segmento ultimo conico-truncato, apice lateraliter setigero subtus stylis duobus conico-elongatis inflexis armato. (♂)*

Long. corp. lin. 2.—Præcedenti valdè affinis, at minor. An illius mas?

Hab. in Indiâ Orientali, apud Bengaliâ.—In Mus. D. Hope.

NYCTERIBIA DUBIA. *Nyct. fusco-castanea, pedibus magis castaneis; coxis anticis elongato-conicis, femoribus tibiisque subcylindricis; thorace subtus irregulariter rugoso; pectinibus thoracis lateralibus elongatis; abdomine (“♀” Latr. ♂?) ovato, 6-annulato, segmento postico conico-elongato posticè attenuato et truncato.*

Long. corp. circiter lin. 2., Latr.

Nycteribia Blainvillii, Latr., in Nouv. Dict. d’Hist. Nat., tom. xxiii. nec Leach.

Hab. in Insulâ Isle de France dictâ. Latr.—India?—In Mus. olim Latreille.

The alleged diversity of sex, the difference of *habitat*, and the nearly cylindrical legs, induce the belief that this species is distinct from the last, with which however it offers a close resemblance both specifically and sexually.

NYCTERIBIA BLAINVILLII, Leach. *Nyct.* "pedibus longis tenuibus femoribus tibiisque apicem versus gradatim attenuatis"; obscure ochraceo-livida; abdomine (apice excepto) fusco, elongato-conico, depresso, segmentis sex apice setigeris, ultimo longiore subrotundato. (♂)

Long. corp. lin. 1. ($1\frac{3}{4}$ secundum Leach.) "Minor *Phthiridia Hermannii*."—Leach.

Hab. in Insulâ Isle de France dictâ.—In Mus. Brit.

NYCTERIBIA ROYLI. *Nyct.* obscure nigra, pedibus fuscantibus elongatis vix compressis, coxis anticis brevibus; abdomine ovato-conico, depresso, 5-articulato, apice subtruncato, stylis duobus incurvis subtus armato; capite compresso. (♂)

Long. corp. lin. $1\frac{1}{4}$.

Hab. in Indiâ Orientali.—In Mus. D. Royle.

NYCTERIBIA DUFOURII. *Nyct.* pedibus elongatis, coxis abbreviatis; oculis rotundatis sessilibus simplicibus; abdomine ♀ ovali, apice setigero, segmentis destituto, suprâ paribus tribus serierum setarum brevium rigidarum instructo; ♂? oblongo, 6-articulato, apice subtus stylis destituto?

Long. corp. lin. $1\frac{1}{4}$ ♀. lin. 1. ♂?

Nyct. *Vespertilionis*, Dufour, in *Ann. des Sci. Nat.*, Avril 1831, pl. 13. fig. 4.

Hab. in *Vespertilione murino* Galliæ.

NYCTERIBIA PEDICULARIA, Latr. *Nyct.* fusca; corpore suprâ pedibusque flavo-rufescentibus; thorace subtus fusco-rufescente, lineâ longitudinali medianâ nigra; pedibus longis arcuatis, coxis anticis brevibus subcylindricis, femoribus tibiisque valde compressis ferè ellipticis; pectinibus lateralibus thoracis brevibus; abdomine setis rigidis armato.

Nyct. *Vespertilionis*, Latr., *Gen. Crust.*, &c., vol. iv. p. 364. pl. 15. fig. 11. *Id.*, in *Nouv. Dict. d'Hist. Nat.*, tom. xxiii.

Latreille's original name is restored to this species, it being considered as distinct from any of the others, with the exception perhaps of Hermann's *Nyct. Vespertilionis*.

NYCTERIBIA VEXATA. *Nyct.* pallidè ferruginea; pedibus elongatis, coxis anticis brevibus; abdomine ♂ 8-articulato, testaceo, ovato-conico, apice subrotundato, subtus stylis ad apicem duobus incurvis alteroque intermedio armato.

Long. corp. lin. 1— $1\frac{1}{2}$.—Specimen aliud (♂? siccitate contractum? vel ♀??) abdomine ad apicem emarginato à cl. Hermannò descriptum est.

Nyct. *Vespertilionis*, Herm., *Mem. Apt.*, pl. 5. f. 1.

Hab. in *Vespertilione murino* Europæ.

The insect described by Hermann under the name of *Nyct. Vespertilionis* may be considered, without hesitation, as specifically distinct from our two British species, as well as from *Nyct. Dufourii*, in the structure of the male. It may possibly, however, be identical with *Nyct. pedicularia*.

NYCTERIBIA JENYNSII. *Nyct. pallidè ochraceo-flavescens, setis pectinibusque thoracis et abdominis basi nigris; palpis longè setosis; oculis sessilibus, rotundatis, simplicibus; pedibus elongatis tenuibus, coxis anticis brevioribus, femoribus tibiisque paullò compressis; abdomine ovato, seriebus sex transversis setarum rigidarum (segmenta totidem indicantia) notato, segmento ultimo laminis duabus elongatis incurvis contiguis styloque carnosò intermediò subtùs terminato. (♂)*

Long. corp. lin. $1\frac{1}{2}$.

Hab. in Chinâ.—In. mus. nostr. Amicissimè communicavit Rev. Leonard Jenyns.

NYCTERIBIA LATREILLII, Leach. *Nyct. pallidè ochracea; pedibus perbrevis, femoribus tibiisque valdè dilatatis setis obscuris elongatis, tarsorum articulo primo reliquis conjunctim vix longiore; thoracis pectore latiore et brevioribus; pectinibus thoracis unguibusque nigris; abdomine ♂ 6-articulato, segmento ultimo longiore, conico-truncato, subtùs laminis duabus distantioribus elongatis incurvis et ad ventrem adpressis, styloque intermedio armato; ♀ ovali absque appendiculis, apice inciso, subtùs articulo basali distincto, seriebusque sex transversis setarum rigidarum instructo, segmenta? indicantibus.*

Long. corp. lin. $\frac{3}{4}$. ($1\frac{1}{2}$ secundum Leach.)

Hab. in *Vespertilione murino* Angliæ.—In Muss. Brit., DD. Stephens, Jenyns et Curtis.

The references of this species to Linnæus and Olfers, given by Dr. Leach, must be considered as dubious. Frisch (vol. ii. pt. 5. pl. 5.) has represented an insect, which, from the shortness of the legs, may possibly be intended for this species. That it is not the species figured by Latreille in the 'Histoire Naturelle' and the 'Genera Crustaceorum,' (with which it is doubtfully considered as synonymous by Dr. Leach,) is evident from the length and slenderness of the legs in the figures contained in those works.

NYCTERIBIA BIARTICULATA. *Nyct. pallidè ochracea, abdomine obscuriore; pedibus elongatis dilatatis longè setosis, setâ unicâ ad basin tibiæ longissimâ, coxis anticis brevibus; abdomine ♀ quasi 2-articulato, segmento primo suprâ longiùs producto, stylis duobus caudalibus elongatis cylindricis porrectis ad apicem longè setosis; ♂ 6?-articulato subtùs ad apicem stylis duobus incurvis ad ventrem adpressis; thorace subtùs concolore.*

Long. corp. lin. $1\frac{1}{4}$. (2 secundum Leach.)

Phthiridium biarticulatum, *Herm., Mem. Apt., pl. 6. f. 1. ♀*

Phthiridium Hermanni, *Leach, Zool. Misc., vol. iii. pl. 144. ♂. ♀.*

Celeripes Vespertilionis, *Mont., in Linn. Trans., vol. ix. p. 166.*

Nycteribia Vespertilionis, *Mont., in Linn. Trans., vol. ix. t. 3. f. 5 ♀.*

Hab. in *Rhinolopho Ferro-equino* Angliæ, Germaniæ, Italiæ.—In Muss. Brit. et D. Stephens.

Obs. Species distinctissima, sectionem peculiarem in genere constituens.

Hermann's trivial name for this species has been restored, as well in justice to that author as with the view of obviating the confusion which has arisen from his chief description having been derived from a different species.

Mr. Westwood's Memoir was illustrated by numerous magnified figures of the different species and of the details of their external structure.

December 9, 1834.

William Yarrell, Esq., in the Chair.

Specimens were exhibited of three species of the genus *Bulinus*, Lam., which were regarded by Mr. G. B. Sowerby as previously undescribed. He characterizes them as follows :

BULINUS LEUCOSTOMA. *Bul. testâ ovatâ, ventricosâ, anticè latiore, posticè obtusâ; anfractibus quatuor, primis longitudinaliter subsulcatis, ultimo maximo, lævi, omnibus olivaceo-fuscis, suturâ pallidiorè, crenulatâ; aperturâ oblongâ, posticè acuminatâ, peritremate reflexo, albo: long. 2·6, lat. 1·4 poll.*

Hab. in provinciâ Peruviæ Xagua dictâ. *D. Matthews.*—Mus. D. Miller.

Mr. Gray is of opinion that this is *Bul. granulatus* of M. Rang.

BULINUS BADIUS. *Bul. testâ ovatâ, ventricosâ, posticè subacuminatâ; anfractibus quinque, rotundatis, longitudinaliter striatis, fulvescentibus fusco fasciatis, fasciis interruptis; umbilico minimo; aperturâ ovatâ, posticè subacuminatâ; peritremate tenui, acuto: long. 1, lat. 0·6 poll.*

Hab. in provinciâ Peruviæ Xagua dictâ. *D. Matthews.*—Muss. DD. Miller, Cuming, et Sowerby.

BULINUS BICOLOR. *Bul. testâ oblongâ, posticè subacuminatâ, pallescente, fasciis interruptis fuscis; anfractibus quinque, subventricosis, ultimo majore; umbilico minimo; aperturâ subovatâ, posticè acuminatâ; peritremate tenui, subacuto: long. 0·9, lat. 0·4 poll.*

Hab. in provinciâ Peruviæ Xagua dictâ. *D. Matthews.*—Muss. DD. Miller, Cuming, et Sowerby.

The specimens were brought to England by Mr. Miller, to whom the Society is indebted for their exhibition.

The reading was concluded of a Paper entitled "Notes on the Natural History and Habits of the *Ornithorhynchus paradoxus*, Blum.," by Mr. George Bennett, Corr. Memb. Z. S.; in which the author gives a detailed account of his inquiries and researches on the subject in question, made in the Colony of New South Wales, and in the interior of New Holland, at the end of 1832 and commencement of 1833. He commences by a description of the external character of the animal, as observed by him in the living and recent state; from which it appears that the greater or less degree of nakedness of the under surface of the tail is dependent on age, and is probably a result of the mode in which that organ trails upon

the ground; that the colour of the upper mandible above, in an animal recently taken out of the water, is of a dull dirty greyish black covered with innumerable minute dots, and the under surface of the lower white in the younger specimens, and mottled in the more aged, while the inner surface of both is of a pale pink or flesh colour; that the eyes are brilliant, and light brown; and that the external orifices of the ears, which are with difficulty detected in dead specimens, are easily discoverable in the living, the animal exercising the faculty of opening and closing them at will. When recent, and especially when wet, the *Ornithorhynchus* has a peculiar fishy smell, proceeding probably from an oily secretion. It is used as food by the Natives, by whom it is called, at Bathurst and Goulburn Plains, and in the Yas, Murrumbidgee and Tumat countries, by the names of *Mallangong* or *Tambrect*. Mr. G. Bennett is inclined to regard the two species usually described in modern books as not differing sufficiently from each other to justify their separation, and he therefore retains the name of *Orn. paradoxus* given to the animal by Professor Blumenbach, the universal adoption of which renders it inexpedient in this instance to recur to the older name of *Platypus* imposed on it by Shaw. He remarks on the distortions to which the exceedingly loose integuments are liable in the hands of stuffers unacquainted with the characteristic features of the animal, and gives the general result of his measurements, in the recent state, of fifteen specimens shot and captured alive, as averaging in the males from 1 foot 7 to 1 foot 8 inches, and in the females from 1 foot 6 to 1 foot 7 inches, in total length. One male specimen, shot near the Murrumbidgee River, measured 1 foot 11 $\frac{1}{4}$ inches; and a female, shot in the afternoon of the same day in the same part of the river, measured only 1 foot 4 inches. In these specimens the relative proportions of the beak and tail were subject to considerable variation.

Mr. G. Bennett's observations were commenced on the 4th of October 1832, at Mundoona in the Murray County, on a part of the Yas River running through the estate of Mr. James Rose. The *Water-Moles* (as these animals are called by the Colonists,) chiefly frequent the open and tranquil parts of the stream, covered with aquatic plants, where the steep and shaded banks afford excellent situations for the excavation of their burrows. Such expanses of water are by the Colonists called "ponds." The animals may be readily recognised by their dark bodies just seen level with the surface, above which the head is slightly raised, and by the circles made in the water around them by their paddling action. On the slightest alarm they instantly disappear; and indeed they seldom remain longer on the surface than one or two minutes, but dive head foremost with an audible splash, reappearing, if not alarmed, a short distance from the spot at which they dived. Their action is so rapid, and their sense of danger so lively, that the mere act of levelling the gun is sufficient to cause their instant disappearance; and it is consequently only by watching them when diving, and levelling the piece in a direction towards the spot at which they seem likely to

reappear, that a fair shot at them can be obtained. A near shot is absolutely requisite; and when wounded they usually sink immediately, but quickly reappear on the surface.

A male specimen was shot, and brought out by the dog, on the following morning. In a few minutes it revived, and ran along the ground, instinctively endeavouring to regain the water, but did not survive more than twenty-five minutes. On this individual Mr. G. Bennett made various experiments, with the view of ascertaining the truth of the reports so extensively circulated of the injurious effects resulting from wounds inflicted by the spur. In no way, however, could he induce the animal to make use of its spurs as weapons of offence; although in its struggles to escape, his hands were slightly scratched by the hind claws, and even, in consequence of the position in which he held it, by the spur also. The result of several subsequent repetitions of the experiment with animals not in a wounded state was the same. The natives, too, never seem fearful of handling the male *Ornithorhynchus* alive.

On the evening of the same day a female was shot, which died almost immediately on being taken out of the water. In this specimen the mammary glands were scarcely observable on dissection; but the left *uterus* was found to contain three loose *ova* of the size of swan-shot. The right *uterus* was less enlarged, exhibited less vascularity, and contained no *ova*. Preparations of the generative organs of this individual, and of two other impregnated females which were subsequently obtained, were forwarded by the author to Mr. Owen, by whom they have been particularly described in the 'Philosophical Transactions' for 1834, p. 555.

The next day three other specimens were shot: a male and two females. In the former the *testes* were found not to be larger than very small peas, and the same fact was observed in a specimen afterwards shot in the Murrumbidgee; whereas in that first obtained, they were nearly of the size of pigeons' eggs. For this difference at the same season it seems difficult to account. The left *uterus* of one of the females was found to contain two *ova*, and that of the other a single *ovum*, of the size of buck-shot. As before, no *ova* were found in the right *uterus*.

On the morning of the 7th of October, Mr. G. Bennett proceeded, in company with a native, to the banks of the river to see the burrow of an *Ornithorhynchus*, from which the natives had taken the young during the previous summer. The burrow was situated on a steep part of the bank; and its entrance, concealed among the long grass and other plants, was distant rather more than a foot from the water's edge. Its whole extent was not laid open, the natives contenting themselves with digging down upon it at stated distances, their operations being guided by the introduction into the burrow of a stick which indicated its direction. It took a serpentine course, and measured about twenty feet in length: the termination was broader than any other part, nearly oval in form, and strewed with dry river-weeds, &c. From this nest the native stated that he had taken in the previous season (December) three

young ones, about six or eight inches in length, and covered with hair. In addition to the entrance above spoken of, the burrows have usually a second below the surface of the water, communicating with the interior just within the upper aperture. After exhibiting this burrow, the native proceeded to explain the means employed in tracking the *Mallangongs*. He pointed out on the moist clay of the banks foot-marks leading to a burrow, from the bottom of which, on inserting his arm, he drew forth some lumps of clay, which bore evident marks of the animal's recent passage. He declared, however, that the inhabitant was absent, and Mr. G. Bennett was induced, by this information, to abstain from further investigation. A female specimen, shot in the evening of the same day, was found to have two *ova*, about the size of or rather smaller than buck-shot, in the left *uterus*; and in this, as in all the other female specimens, much difficulty was experienced in finding the mammary glands. The contents of the cheek-pouches and stomachs always consisted of river insects, very small shell-fish, &c., comminuted and mingled with mud or gravel, which latter, Mr. G. Bennett suggests, may be required to aid digestion. River-weeds were never observed to form part of the food; but Mr. George MacLeay informed the author that in a situation in which water-insects were very scarce he had shot *Ornithorhynchi* with river-weeds in their pouches.

Similar excursions were made on the 8th and 9th of October; and on the latter day one of the burrows was explored. The entrance of this burrow was situated on a moderately steep bank, abounding with long wiry grass and shrubs, at the distance of about five feet from the water's edge: its course lay in a serpentine direction up the bank, approaching nearer to the surface of the earth towards its termination. At this part it was expanded to form a chamber sufficiently capacious for the reception of the animal and her young, and measured one foot in length by six inches in breadth. Its whole length, from the entrance to the termination, was twenty feet; narrowing as it receded from the entrance, where it measured one foot three inches in depth, and one foot one inch in breadth, and in the intermediate part becoming scarcely larger than the usual breadth of the animal when uncontracted.

From this burrow a living female was taken, and placed in a cask, with grass, mud, water, &c.; and in this situation it soon became tranquil, and apparently reconciled to its confinement. Hoping that he had now obtained the means, should his captive prove to have been impregnated, of determining the character of the excluded product, Mr. G. Bennett set out on his return for Sidney, on the 13th of October, carrying the living *Ornithorhynchus* with him in a small box, covered with battens, between which only very narrow intervals were left.

The next morning, tying a long cord to its leg, he roused it and placed it on the bank of the river, in order to indulge it with a bath; and a similar indulgence was granted to it on the second day of its journey. On these occasions it soon found its way into the water, and travelled up the stream, apparently delighting in those places

which abounded most with aquatic weeds. When diving in deep and clear water, its motions were distinctly seen: it sank speedily to the bottom, swam there for a short distance, and then rose again to the surface. It appeared, however, to prefer keeping close to the bank, occasionally thrusting its beak into the mud, from whence it evidently procured food, as on raising the head, after withdrawing the beak, the mandibles were seen in lateral motion, as is usual when the animal masticates. The motions of the mandibles were similar to those of a duck under the same circumstances. After feeding, it would lie sometimes on the grassy bank, and at others partly in and partly out of the water, combing and cleaning its coat with the claws of the hind feet. This process occupied a considerable time, and greatly improved its sleek and glossy appearance. After its second excursion it was replaced in the box, which was not opened again until the following morning, when it was found to have made its escape.

Although the summer season was now far advanced, Mr. G. Bennett determined to return to the interior and renew his investigations. On the 15th of November he again arrived at Mundoona, where he found that the river had fallen greatly, and sought in vain for the *Water-Moles* in the spots in which they had a few weeks before been so abundantly seen. Some burrows were also examined, but without success. On the 21st he proceeded to Gadarigby, on the Murrumbidgee, where his exertions were more successful, several specimens being obtained; but the only female shot was young and unimpregnated. On the 27th he returned to Mundoona, where a female had been shot the previous day, the uterine organs of which afforded evidence that the young had been just produced. The abdominal glands were large, but no milk could be expressed from them; the fur still covered the portion of integument on which its ducts terminated; and there was no appearance of projecting nipple. No such projection was observed in any of the specimens in which the secretion of milk was demonstrable. Two other females were procured at the same place; but both proved to be unimpregnated.

On the 8th of December Mr. G. Bennett quitted Mundoona for the banks of the Murrumbidgee, and near Jugiong, on the latter river, had an opportunity of inspecting the burrow of an *Ornithorhynchus*, containing three young ones, which appeared to have not long previously been brought forth. They were only thinly covered with hair and measured in length about $1\frac{1}{4}$ inch. No fragments of shells were observable in the burrow, nor anything that could lead to the supposition of the young having been excluded while yet in the egg. A want of spirit in which to preserve these interesting specimens unfortunately prevented their conveyance to Sidney.

On the 28th of December the author visited a part of the Wollondilly River, in the neighbourhood of Goulburn Plains, called by the Natives Koroa, in order to explore the burrow of an *Ornithorhynchus* which had there been discovered. The termination of this burrow was thirty-five feet from the entrance; and Mr. G. Bennett states

that burrows have been observed of even fifty feet in length. It was found to contain two young specimens, of the dimensions of 10 inches from the beak to the extremity of the tail. The nest consisted of dry river-weeds, the *epidermis* of reeds, and small dry fibrous roots, strewed over the floor of the terminal cavity. An old female was captured soon after on the banks of the river, in a ragged and wretched condition, which was conjectured to be the mother. But little milk could be pressed from her abdominal glands, as might have been expected in the parent of such well-grown young ones. She died at Mittagong, on the 1st of January, but the young ones survived until some time after their arrival in Sidney.

Mr. G. Bennett proceeds to describe in detail their habits in a state of captivity. Their various attitudes, when in a state of repose, are strikingly curious, and were illustrated by the exhibition of sketches made from the life. The young were allowed to run about the room; but the old one was so restless, and damaged the walls of the room so much by her attempts at burrowing, that it was found necessary to confine her to the box. During the day she would remain quiet, huddled up with her young ones; but at night she became very restless, and eager to escape. The little ones were as frolicsome as puppies, and apparently as fond of play: and many of their actions were not a little ludicrous. During the day they seemed to prefer a dark corner for repose, and generally resorted to the spot to which they had been accustomed, although they would change it on a sudden apparently from mere caprice. They did not appear to like deep water, but enjoyed exceedingly a bathe in shallow water, with a turf of grass placed in one corner of the pan: they seldom remained longer than ten or fifteen minutes in the water at one time. Though apparently nocturnal, or at least preferring the cool and dusky evening to the glare and heat of noon, their movements in this respect were so irregular as to furnish no grounds for a definite conclusion. They slept much, and it frequently happened that one slept while the other was running about, and this occurred at almost all periods of the day. They climbed with great readiness to the summit of a bookcase, placing their backs against the wall and their feet against the bookcase; and thus, by means of their strong cutaneous muscles and of their claws, mounting with much expedition to the top. Their food consisted of bread soaked in water, chopped egg, and meat minced very small; and they did not seem to prefer milk to water. One of the young ones died on the 29th of January 1833, and the other on the 2nd of February, having been kept alive in captivity for nearly five weeks.

December 23, 1834.

Lieut.-Col. Sykes in the Chair.

Drawings were exhibited of four *Fishes* of the River Quorra, made by Lieut. Allen, Corr. Memb. Z. S., from specimens obtained by him during his late voyage up that river into the interior of Africa. They exhibit the forms of *Lates*, Cuv.; *Mormyrus*, Ej.; *Sudis*, La Cép; and *Notopterus*, Ej.; and thus tend, in common with the specimens from the same expedition exhibited at the Meeting of the Society on June 10 (page 45), to illustrate the analogy borne by the *Fishes* of the rivers of Western Africa to those of the Nile.

A specimen was placed on the table of a *Toucan*, apparently hitherto undescribed, and forming part of the collection of N. C. Strickland, Esq., by whom it was communicated for exhibition.

Mr. Gould, at the request of the Chairman, pointed out its distinguishing characteristics. By its comparatively short bill, which is furrowed on the sides, and broad and flattened on the *culmen*, with the base of the under mandible extending obliquely beyond the line of the eye; by the shortness and roundness of its wings, of which the fourth quill-feather is the longest, the fifth, sixth, and seventh being nearly of the same length; and by the comparative shortness of the tail, which is less decidedly graduated than in the typical *Pteroglossi*; this bird agrees with the species described in Mr. Gould's 'Monograph of the *Ramphastidæ*,' as the *Pter. prasinus*, Licht., and *Pter. sulcatus*, Swains. With those species Mr. Gould proposes to associate it in a group, to be designated, on account of the grooved bills of the *Birds* comprised in it, *Aulacorhynchus*. From the other two species it is readily distinguishable by the white band nearly surrounding the base of its bill, and by the blood-red spot on the rump. The latter character affords the trivial name of the species, which may, for the present, be inserted in the account of the *Toucans* given by Mr. Gould at the Meeting of July 8, 1834, (page 78,) immediately before the *Pter. prasinus*, Licht.

PTER. HÆMATOPYGUS. *Pter. suprâ subolivaceus, infrâ cœrulescenti-viridis, pectore saturatiore; uropygio coccineo; rectricibus quatuor intermediis brunneo apiculatis.*

Long. tot. 14 poll.; rostri, $2\frac{3}{4}$; alæ, $4\frac{3}{4}$; caudæ, $5\frac{1}{4}$; tarsi, $1\frac{1}{4}$.

DESCR. Rostrum saturatè castaneum albo ad basin subinctum. Orbitæ rubræ. Pedes olivaceo-brunnei. Sexus uterque, sicut in *Pter. prasino* et *Pter. sulcato*, similis.

The precise part of South America in which this bird was captured has not been ascertained.

Col. Sykes, when reading to the Society, in 1832, his Catalogue of the Birds of Dukhun, not having exhibited the nest and eggs of the *Lonchura Cheet*, and of that species of *Tailor-bird* which he denominated *Orthotomus Bennettii*, brought them under the notice of the Society on the present occasion.

The nest of the *Lonchura Cheet* is a perfect hollow ball, made of a delicate *Agrostis*, with a lateral hole for the entrance of the birds. It contained ten oblong minute white eggs, $\frac{1}{4}$ ths of an inch long by $\frac{3}{16}$ ths in diameter. It was found in the fork of a branch of the *Mimosa Arabica*.

The nest of the *Orthotomus Bennettii* was lodged in the cavity formed by sewing the edges of two leaves together: the nest itself also was attached to the leaves by threads passing through the leaf and the bottom of the nest, and there were appearances of the end of the thread being knotted outside. The nest is composed of very delicate fibres of *Indian Hemp* and grass. It contained two minute oblong crimson eggs, $\frac{3}{16}$ ths of an inch long by $\frac{9}{16}$ ths wide.

Col. Sykes also exhibited an egg of the *fluviatile Tortoise* of Dukhun, *Trionyx Indicus*, Gray. It is a perfect sphere, $1\frac{1}{4}$ inch in diameter: the calcareous shell is of a peculiar alabaster-like whiteness. He found seven eggs with shells in the oviducts, and twenty-seven without shells, nearly of the size of the preceding, in one specimen. He took occasion to mention that in the stomach and intestines of another specimen of *Trionyx*, he found not only the animals, but also angular fragments of considerable size of the shells of some scores of large *Uniones*.

A paper was read, entitled, "Description of some Species of *Chama*: by W. J. Broderip, Esq., Vice-President of the Geological and Zoological Societies, F.R.S., L.S., &c."

The author commences by remarking that the shells of the genus *Chama* appear to be subject to every change of shape and often of colour which the accidents of their locality may bring upon them, and that the distinction of the species must consequently be difficult, on account of their infinite variety. He then proceeds to describe those brought home by Mr. Cuming, and now in that gentleman's cabinet. The *Shells* referred to were exhibited in illustration of the characters and descriptions.

CHAMA FRONDOSA. *Chama testá sublobatá, lamellosá, lamellis sinuosis frondosis, longitudinaliter plicatis et in utráque valvâ cardinem versus biseriatis, maximis; intùs albidâ, limbo purpurascente, crenulatâ.*

Hab. ad Insulam Platam Columbiæ Occidentalis.

The ground colour of this beautiful *Chama* is a light pinkish purple, and the luxuriant and spreading longitudinally plaited foliations are yellow tinged and streaked with the ground colour. At the root of each foliation, on its lower side, there is generally a purplish transverse stripe.

It was dredged up from a rock of coral, to which it was adhering, at a depth of seventeen fathoms.

Var. a. *Testá lamellis crebrioribus, frondibus brevioribus.*

Hab. cum præcedente.

Var. b. *Testá totá purpureá, lamellis creberrimis, frondibus brevissimis.*

Hab. ad Mexico. (Gulf of Tehuantepec.)

Dredged up from sandy mud attached to *Aviculæ* (*Meleagrinae*, Lam., *Margaritæ*, Leach,) at a depth of ten fathoms.

CHAMA PELLUCIDA. *Chama testá albá roseo seu rubro fucatá vel strigatá, lamellis frequentibus, frondibus elongatis pellucidis; intùs albá, limbo crenulato.*

Hab. ad Peruviam. (Iquiqui.)

Dredged up attached to stones, *Mytili*, and turbinated shells, at a depth varying from nine to eleven fathoms, from a bottom of coarse sand, and also found under stones at low water mark.

In old specimens the foliations and *lamellæ* are completely worn down, and the shell has somewhat of a crystalline appearance;—indeed it is always semitransparent.

CHAMA LOBATA. *Chama testá albá, lobatá, subrhomboidéa, radiatim striatá, lamellis creberrimis, fimbriatis, foliaceis, striatis; limbo interno crenato.*

Hab. ad Insulam Nevis.

Found attached to small stones and shells, at Nevis in the West Indies, in sandy mud, and at a depth ranging from four to ten fathoms.

CHAMA PACIFICA. *Chama testá rubrá purpureá vel luteá, lamellis creberrimis, foliis seu squamulis brevioribus interdum albidis; limbo interno crenato.*

Hab. in Oceano Pacifico. (Lord Hood's Island.—Pearl Islands.)

The infinite variety of this species in shape and colour defies description. In many points it agrees with Lamarck's *Chama florida*, but he describes the margin of that shell as entire, whereas the margin of *Chama Pacifica* is strongly crenated.

Mr. Cuming's specimens were obtained by diving. They were attached to *Aviculæ*, at a depth ranging from three to seven fathoms. Many shells of this species were brought to this country some years ago, from the Pearl Islands, by Mr. Samuel Stutchbury.

CHAMA IMBRICATA. *Chama testá lamellosá, squamis imbricatá, albidá purpureo-fusco variá; valvâ superiore subdepressá, sublobatá, sinu ab umbone usque ad limbum currente; intùs albidá, limbo integro, sæpissimè nigro-purpureo.*

Hab. in Oceano Pacifico. (Lord Hood's Island.—Pearl Islands.)

This grows to a large size, and was obtained by diving, attached to *Avicula*, at a depth ranging from three to seven fathoms. There is generally a purple spot at the tip of the *umbo* of the upper valve.

This species was also brought home in considerable numbers by Mr. Samuel Stutchbury from the Pearl Islands.

Var. a. *Testá naná, castaneá albo strigatá, intùs albá.*

Hab. ad Insulas Gallapagos.

The examination of an extensive series has led Mr. Broderip to the conclusion that this dwarf, and at first sight widely differing, shell, is only a variety of *Chama imbricata*. The purple-brown is changed into chestnut striped with white, and hardly any scales are to be found on its wrinkled surface, except the double series which crown the ridge on each side of the depressed line, and sometimes a series or two on the affixed valve. This depressed line is not nearly so well marked as it is in the large variety, but it is to be observed on most of the specimens: some are absolutely without imbrications.

This variety was found attached to rocks and stones at low water.

CHAMA PRODUCTA. *Chama testá subpurpureá, creberrimè lamellosá, lamellis foliaceis, integris; valvâ inferiore enormiter productá; limbo integro, purpureo.*

Hab. ad Mexico. (Gulf of Tehuantepec.)

The interior of the shell, which has something of the aspect of that of a *Gryphæa*, is white tinged with yellowish, and striped in the direction of the *lamellæ* with purple. The purple border on the smooth internal edge of the upper valve is of some width.

Dredged up from sandy mud at a depth of ten fathoms, attached to stones.

CHAMA CORRUGATA. *Chama testá corrugatá, rubro-purpureá albo variá; intùs atro-purpureá, limbo integro.*

Hab. in Americâ Centrali. (Real Llejós.)

Found attached to stones at low water. All the specimens which Mr. Broderip had seen turn from right to left.

CHAMA ECHINATA. *Chama testá albida purpureo variá, spinis fornicatis echinatá; intùs atro-purpureá vel sub-rubrá, limbo integro; dente cardinali rubro.*

Hab. in Americâ Centrali. (Puerto Portrero.)

The spines of this species, which are close set and well developed in youth, are entirely abraded in age, till nothing but corrugation is left externally. But as the animal advances in life the interior of the shell is richly painted, till in old age it arrives to an intensity of dark purple that it is hard to imitate with colours however rich. At this period the cardinal tooth becomes of the hue of the bone of the red Coral (*Isis nobilis*) used for ornamental purposes.

Found at low water attached to rocks.

CHAMA SPINOSA. *Chama testá albá interdum roseo vel purpureo umbonem versùs valvæ superioris pictá, spinis fornicatis creberrimis horridá; intùs albá, limbo integro.*

Hab. in Oceano Pacifico. (Lord Hood's Island.)

This pretty species was dredged up, attached to corals and *Aviculæ*, at a depth ranging from three to seven fathoms. The younger specimens are tinged towards the *umbo* of the upper valve with a delicate rose-colour. The *umbo* of the lower valve is often produced after the manner of that of *Chama unicornis*, Lam.

CHAMA SORDIDA. *Chama testâ albidâ subroseo varid vel totâ subroseâ, creberrimè striatâ, hinc et hinc foliaceâ; intûs albâ, limbo crenulato.*

Hab. in America Centrali. (Isle of Cuña.)

This species, which varies much according to its age, but never appears to grow to a large size, was dredged up from a depth of eighteen fathoms, attached to rocks. Old specimens have the lower valve often very much produced.

A Note by Mr. George Bennett on the Nasal Gland of the *wandering Albatross*, *Diomedea exulans*, Linn., was read. It described in detail the gland situated in that bird above the orbit, as observed by the writer in 1832, and accorded with the account of it published by him in the Appendix to his 'Wanderings in New South Wales,' &c. It was illustrated by a drawing of his dissection of the head of an *Albatross*, made specially with the view of tracing the excretory duct of the gland, which he succeeded in doing for nearly two inches under the external plate of the upper mandible, in a direction towards the nostrils, but inclining slightly upwards, until he lost sight of it among the cellular substance of the bone. The writer notices the occurrence of a corresponding structure in other *Birds*, particularly among the *Natatores*, and refers to Müller for an account of the gland as it exists, in or near the orbit, in species of every order of *Aves*.

A specimen was exhibited of a *Kangaroo*, recently brought from New Holland, by Capt. Sir W. Edward Parry, R.N., and presented by him to the Society.

Mr. Bennett called the attention of the Meeting to it as representing a species not hitherto described, and distinguishable by its paler colour, which is generally of a slaty grey; by the whiteness of its tail throughout the greater part of the length of that organ; by the comparative length of the tail, which is here longer than the body, whereas in the ordinary *greater Kangaroo*, *Macropus major*, Shaw, it is shorter; by the comparative nakedness of the ears; by the great extent of the naked muzzle; and by a broad white stripe along each cheek. He stated it to be his intention to describe it in detail under the name of

MACROPUS PARRYI. *Macr. rhinario lato; auriculis elongatis nudiusculis; caudâ corpore sublongiore, pilis rigidis brevibus incumbentibus vestitâ: notæo griseo; gastræo pallido; fasciâ genarum, caudâque pro maximâ parte, albis, hâc ad apicem nigrâ.*

Long. tot. a rostro ad caudæ apicem 5 ped. 4 poll.; *capitis*, 6 poll.; *auriculæ*, 4; *tarsi postici*, ad unguis longioris apicem, 10½; *caudæ*, 2 ped. 6 poll.

In a Note from Sir Edward Parry, which was read, it is stated that the animal in question is known to the natives in the neighbourhood of Port Stephens (lat. 32° S.) by the name of *Wölläroo*. This individual had been in his possession in New South Wales for two years previously to his embarkation for England, and was allowed to

range about at perfect liberty. It set out every night after dusk into the bush to feed, returning generally about two o'clock in the morning. In addition to what it obtained on these excursions, it ate meat, bread, vegetables, &c. Occasionally, but rarely, it ventured out in the daytime to a considerable distance, in which case it would sometimes be chased back by strange dogs: these, however, it always outstripped by its superior swiftness, until it placed itself under the protection of the dogs of the house. It died, from the effects of an accident, almost immediately after its arrival in England.

Detailed Notes of its dissection by Mr. Owen were read. The structure of its principal *viscera* corresponds in general with that of the same organs in the *greater Kangaroo*, but there are some differences observable in the anatomy of the two species. The puckering of the stomach, which is occasioned in *Macr. major* by three longitudinal bands, one extending on each side from the *æsofagus* along the lesser curvature, and the third passing along the line from which the great *epiploon* is continued to the spleen and transverse *colon*, depends in *Macr. Parryi* on the lateral bands alone, there being no mesial one. The different segments of the intestinal canal bear the same relative proportion to each other in both species; but the length of the several segments, and consequently of the whole canal, is less as compared with that of the body in *Parry's* than in the *greater Kangaroo*,—a fact which is in direct accordance with the more mixed nature of the food in the former. The spleen in *Macr. Parryi* was deeply notched at its free trenchant margin; in *Macr. major* it appears to be always entire. The mesial *cul-de-sac* of the *vagina* did not extend quite so far down in *Macr. Parryi*, as it does in the better-known species.

In the stomach were found two hair-balls of an oval shape, not rounded as they generally are in the *Ruminants*, which are most obnoxious to these formations. One of them was 3, and the other 2 inches in the long diameter. They were entirely composed of the hairs of the animal, matted together and agglutinated by the mucus of the stomach. Mr. Owen remarks on the interest which attaches to this resemblance to the *Ruminating* tribes, to which the *Kangaroos* make so near an approach in the complexity and magnitude of the stomach, and the simplicity of the *cæcum* and *colon*. He states that he has "more than once observed the act of rumination in the *Kangaroos* preserved in the Vivarium of the Society. It does not take place while they are recumbent, but when they are erect upon the tripod of the hinder legs and tail. The abdominal muscles are in violent action for a few minutes; the head is a little depressed; and then the cud is chewed by a quick rotatory motion of the jaws. This act was more commonly noticed after physic had been given to the animals, which we may suppose to have interrupted the healthy digestive processes: it by no means takes place with the same frequency and regularity as in the true *Ruminants*."

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PROCEEDINGS
OF THE
ZOOLOGICAL SOCIETY
OF LONDON.

PART III.

1835.



PRINTED FOR THE SOCIETY,
BY RICHARD TAYLOR,
RED LION COURT, FLEET STREET.

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OF
CONTRIBUTORS.

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PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY OF LONDON.

January 13, 1835.

William Yarrell, Esq., in the Chair.

A specimen was exhibited of the *brush-tailed Kangaroo*, *Macropus penicillatus*, Gray, which had recently been presented to the Society by Captain Sir Edward W. Parry. Mr. Bennett called the attention of the Meeting to its peculiarities, and remarked on the great hairiness of the tail, and especially on its want of robustness at the base, as indicating probably the type of a new genus, to be removed from among the *Macropi* on account of the diminished power of an organ which is so exceedingly strong among the typical *Kangaroos* as to execute, during the act of slow progression and while resting, the office of a third leg. In connexion with this peculiarity of tail, Mr. Bennett pointed out also a difference in the form of the third, or extreme lateral, incisor, as compared with the corresponding tooth in *Macr. major*, Shaw; *crania* of the two animals being exhibited for that purpose. The third incisor in *Macr. penicillatus* is bilobed, and approaches somewhat to the character of the corresponding tooth in *Macr. Parryi*, Benn.

A note by Sir Edward Parry, which accompanied the specimen, was read. The animal appears to be procurable with difficulty, as this individual was "the only one of the kind ever seen by Sir E. Parry. It was shot among rocks near Liverpool Plains, New South Wales. As several of the same kind were seen together on more than one occasion, they appear to be gregarious. They seemed to prefer the neighbourhood of rocky ground, in which they had holes, to which, when hunted, they retreated. The first intimation received of these animals by Mr. Hall was, that monkeys were to be seen in a particular situation: and the manner in which they jumped about, when he first approached a number of them, left the same impression on his mind. They were so wild that he found it impossible, on his first attempt, to obtain a specimen; and one which he had wounded escaped into its hole. Some months afterwards, however, after remaining on the spot a whole night for the purpose, he

succeeded in killing one towards daylight, which is the specimen now presented to the Society."

Mr. George Bennett stated that while in New South Wales he had heard of an animal called *Gúnar* by the natives, and found about the Beran Plains, which was described to him as in some degree resembling a *Kangaroo*, but differing from it in having a bushy tail, and in the form of the head, which was stated to resemble that of the *Hare*. He suggested the probability that the *Gúnar* and the *brush-tailed Kangaroo* might be specifically identical.

Extracts were read from a Letter addressed to the Secretary by M. Lesson, For. Memb. Z.S., and dated Rochefort, December 29, 1834. It was accompanied by the subjoined table of a distribution of the families of the *Acalepha*, Cuv., proposed by the writer.

ACALEPHA.

I. Without a central solid axis.

A. Body simple, entire.

- | | |
|---|--------------|
| 1. Symmetrical, terminated at each pole by an opening. | 1. BEROIDEÆ. |
| 2. Non-symmetrical: the upper pole disciform or umbrella-shaped, imperforate. | 2. MEDUSÆ. |

B. Body multiple or aggregated.

a. Homogeneous.

- | | |
|---|--------------|
| 3. Composed of two pieces adhering together, and capable of separation from each other. | 3. DIPHYDES. |
| 4. Composed of numerous pieces aggregated together. | 4. POLYTOMA. |

b. Heterogeneous.

- | | |
|---|-----------------|
| 5. Animal furnished with appendages of different kinds. | |
| * Vesicle small, regular, placed at the summit of a kind of stalk furnished with lateral <i>ampullæ</i> and terminal suckers. | 5. PHYSSOPHORÆ. |
| ** Vesicle large, irregular, without stalk or <i>ampullæ</i> , but having terminal suckers and cirriferous processes. | 6. PHYSALIA. |

II. With a central cartilaginous axis.

- | | |
|---|-------------|
| 6. Body simple, with suckers and lateral <i>tentacula</i> . | |
| a. Body irregularly oblong, with a vertical <i>lamina</i> on its upper surface. | 7. VELELLÆ. |
| b. Body discoid, flat above. | 8. PORPITÆ. |

A letter was read, addressed to the Secretary by B. H. Hodgson, Esq., Corr. Memb. Z.S., and dated Népal, February 25, 1834. It gave a systematic and technical account of the *Chiru Antelope*, *Antelope Hodgsonii*, Abel, in conformity with the latest and most complete information possessed by the writer, and communicated by him to the Society at its Meeting on July 22, 1834. ('Proceedings', Part II. p. 80.)

January 27, 1835.

Lieut.-Col. Sykes in the Chair.

Extracts were read from a Letter addressed to the Secretary by J. B. Harvey, Esq., Corr. Memb. Z.S., and dated Teignmouth, January 22, 1835. It was accompanied by a large collection of *Shells* from the south coast of Devonshire, and by specimens of *Echinodermata* and *Crustacea* from the same coast, which the writer presented to the Society. It was also accompanied by drawings of a large specimen of *Caryophyllia Smithii*, now living in Mr. Harvey's possession: the drawings represent the animal shortly after feeding, when it is expanded sufficiently to contain the food, extending rather above the level of the coral and raised in the middle; and also as it appears three or four hours after having been fed, when it expands itself to the fullest extent, and ejects, in the form of *floculi*, the crude undigested matter.

A Note was read from the Secretary of the United Service Museum, accompanying several skins of *Birds* transmitted for exhibition by direction of the Ornithological Sub-Committee of that Museum. The specimens were brought under the notice of the Meeting.

The exhibition was resumed of the *Shells* collected by Mr. Cuming on the western coast of South America and among the Islands of the South Pacific Ocean. Those brought before the present Meeting were accompanied by characters by Mr. G. B. Sowerby, and comprised the following species:

Genus HIPPONYX.

“Of this remarkable genus Mr. Cuming brought home three species in such perfect condition, as respects the shell, as to possess both valves *in situ*. The two specimens which exhibit these three species appear to me so interesting that I shall venture upon a particular description of them. The first, of the species which I have named *Hipp. Mitrula*, is a group of about twenty individuals, of various sizes, from $\frac{3}{8}$ to $\frac{1}{2}$ an inch in diameter, adhering by their lower or flat valves to an irregular piece of stone; the attached valves as usual, are conformed to the irregularities of the surface of the stone, and when they have been at first attached to a cavity, they are hollow: the upper valves are also somewhat modified in form by the same cause, so as to be more or less regular according as the lower valve has adhered to a more or less smooth and even part of the

stone. The attached valves have not attained a great degree of thickness, consequently I do not suppose any one of the individuals to be of advanced age; there are, however, several which can only just have occupied their positions on the stone: these are not above $\frac{1}{10}$ part of an inch in diameter, and they show the perfect point of the upper valve, somewhat convoluted and inclined toward the anterior edge. Other individuals, which are placed in a cavity of the stone, are very regular in shape, but have their ridges slightly curved upwards in conformity with the nearly regular vesicular shape of the cavity. The edges of the *lamellæ* near the outer margin in most of the specimens are furnished with a thin fringe of *epidermis*, but the very young shells are destitute of this. An individual of *Hipp. subrufa* is observable among the group of *Hipp. Mitrula*: its *apex* is distinctly spiral and its *epidermis* hairy.

“The second specimen belongs to the species which I have named *Hipp. barbata*. This is a very complete specimen, and reminds me of the beautiful fossil species *Hipp. Cornucopiæ*; it is a small individual, having its attached valve very much thickened and adhering to a much larger one of the same species; its edge is much elevated and it is deeply concave; the free valve is rather smaller, and conical, and its edge is surrounded by the elevated edge of the attached valve.”—G. B. S.

HIPPONYX MITRULA. (*Pileopsis Mitrula*, Lam. *Patella Mitrula*, Auct.) *Hipp. testá albá, subconicá, concentricè lamellosá, lamellis subconfertis, radiatim striatis, epidermide pilosis.*

Hab. ad Insulam Peruvianam Lobos dictam.

Found upon stones, in seventeen fathoms' water, among coarse sand.—G. B. S.

✓ HIPPONYX SUBRUFÁ. (*Pileopsis subrufus*, Lam. *Patella subrufa*, Dillw.) *Hipp. testá aurantiaco-rufescente, subconicá, concentricè sulcatá, radiatim striatá, striis profundis, marginibus sulcorum crenulatis; vertice posticè inclinató.*

Hab. cum præcedente.—G. B. S.

✓ HIPPONYX RADIATA, Gray. *Hipp. testá subdepresso-conicá, fulvescente, radiatim costatá, costis crebris, imbricato-squamosis; vertice postico.*

Hab. ad Panamam et ad Insulas Gallapagos.

Found attached to rocks alive, and the upper valves loose on the sands.—G. B. S.

✓ HIPPONYX BARBATA. *Hipp. testá pallidè fulvá, subelevato-conicá, radiatim confertim striatá; margine ventrali producto; epidermide piloso-barbatá; margine interno crenulato.*

Hab. ad Insulas Maris Pacifici.

Found on the coral reefs around Toobouai, one of the Society Islands.—G. B. S.

GENUS MOURETIA.

Mour. MOURETIA PERUVIANA. *Mour. testá subdepresso-conicá, albd, radiatim striatá; vertice centrali; epidermide corned, tenui.*

Hab. ad oras Peruviae. (Cobija.)

Found on rocks at low water.—G. B. S.

Mour. MOURETIA STELLATA. *Mour. testá depressá, squamiformi, albd, radiatim costatá; margine dentato.*

Hab. ad oras Americæ Centralis. (Real Llejos.)

Found on rocks at low water.—G. B. S.

Mour. MOURETIA RETICULATA. *Mour. testá subdepresso-conicá, subrotundatá, supernè reticulatá, albd.*

Hab. ad Valparaiso.

Found attached to shells in deep water, from forty-five to ninety fathoms.—G. B. S.

GENUS SIPHONARIA.

SIPHONARIA COSTATA. *Siph. testá depressá, fusco-nigricante, costis albicantibus, radiantibus, supernè obtusis; margine sinuoso: long. 1.35, lat. 1.05 poll.*

Hab. ad oras Americæ Centralis. (Guacomayo.)

On rocks in exposed situations at low water.—G. B. S.

SIPHONARIA RADIATA. *Siph. testá subdepresso-conicá, fusco-nigricante, costis albicantibus, radiantibus; margine crenato: long. 0.9, lat. 0.75 poll.*

Hab. ad littora Occidentalia Africae. (Gambia.)

This differs from *Siph. costatá* rather by its form than by any other character; this being only a slightly depressed cone, while the last is altogether very flat.—G. B. S.

SIPHONARIA LINEOLATA. *Siph. testá obliquè conicá, fuscá, lineolis numerosis, albidis, radiantibus: long. 0.65, lat. 0.45 poll.*

Hab. ad Paytam Peruviae.

Variat *testá majore, lineis albidis minùs conspicuis: long. 1.05, lat. 0.8 poll.*

Hab. ad Insulam Chiloe Chilensium.

On rocks in exposed situations.—G. B. S.

SIPHONARIA PICA. *Siph. testá subobliquè conicá, nigricante, radiatim costatá et striatá, costis albidis; margine crenato, internè albo maculato: long. 0.8, lat. 0.7 poll.*

Hab. ad Acapulco.

On rocks in exposed situations.—G. B. S.

SIPHONARIA SUBRUGOSA. *Siph. testá subdepresso-conicá, fuscescente, extùs albicante, radiatim costato-striatá, rugulosá; vertice subcentrali, nigro: long. 0.8, lat. 0.6 poll.*

Hab. ad oras Brasiliæ.

Found on rocks in exposed situations.—G. B. S.

SIPHONARIA LÆVIUSCULA. *Siph. testâ subdepresso-conicâ, sub-obliquâ, extûs pallidâ, radiatim albido-lineatâ; intûs fuscescente; margine albicante: long. 0.9, lat. 0.75 poll.*

Hab. ad Valparaiso.

On rocks in sheltered places.—G. B. S.

SIPHONARIA MAURA. *Siph. testâ parvâ, depressâ, subovali, intûs nigrâ, margine albido articulato; extûs fuscescente, albido-radiatâ: long. 0.55, lat. 0.45 poll.*

Hab. ad Panamam.

Found on rocks.—G. B. S.

Mr. Owen read some Notes of a Dissection of a *long-tailed Dasyurus*, *Dasyurus macrourus*, Geoff., which recently died at the Society's Gardens.

The subject was a female, adult, weighing 3lbs. 8½ oz., and measuring from the extremity of the jaws to the root of the tail 1 foot 4 inches, the length of the tail being 1 foot 2½ inches, and that of the head 4 inches. The vaginal orifice and the *anus* were situated within a common outlet, just below the root of the tail. There were six nipples, arranged three on either side, describing three quarters of a circle, and seated within a slight fold of integument, of a corresponding shape, 3 inches anterior to the cloacal outlet.

The external oblique abdominal muscle terminated below in a strong tendon, which was folded inwards, like Poupart's ligament. The abdominal ring consisted of a slit, bounded externally by Poupart's ligament, and internally by the marsupial bone: and Mr. Owen stated it to be his opinion that the marsupial bones are essentially ossifications of the tendons of the external abdominal muscle which constitute the internal or mesial pillars or boundaries of the abdominal rings. The *transversalis abdominis* and internal oblique muscle were distinct.

The stomach was simple, 4½ inches in length and 8 inches in its greatest circumference. It was shaped as in the genus *Didelphis*, and had the *cardia* a little nearer to the *pylorus* than to the left extremity. It was principally nourished by the coronary arteries; the gastro-epiploics being very small and running along the posterior side of the stomach, and not along the greater curvature. The terminal part of the *œsophagus* was furnished with longitudinal *rugæ*. The commencement of the *duodenum*, to the extent of half an inch, was occupied by a zone of glands.

The *omentum* was of small size, extending from the stomach to the spleen, but not covering the intestines: it is possible that as these are short and wide, they do not require such a covering to facilitate their motion. It contained a little fat.

The mesentery was one continuous duplicature of the *peritonæum*, extending from the *pylorus* to the end of the *colon*, as in the *Rep-*

tilia. The vessels anastomose to form but one series of arches. The mesenteric glands were oblong, situated close to the *pancreas*, and exhibited, on being cut into, a dark colour.

The length of the intestines was 5 feet; their greatest circumference $2\frac{1}{2}$ inches. They were destitute of *cæcum* and of any corresponding valve. Their diameter was nearly uniform throughout their whole length.

The anal glands, two in number, were of a spherical form, and half an inch in diameter. Their secretion was dark-coloured. A minute duct conveys it from each gland to the verge of the cloacal opening, which is a little prominent, and is surrounded by a strong *sphincter*.

The liver occupied the situation usual in the *Mammalia*. Its weight was 3 ounces $8\frac{1}{2}$ drachms. It was tripartite, if the cystic lobe (which is deeply cleft) be considered as one division. The right division was partially cleft into three lobes: the cystic division was deeply cleft, with the gall-bladder loosely attached at the bottom of the fissure, not perforating the substance of the lobes as in *Didelphis*. The left division gave off the Spigelian *appendix*. All the lobes are irregularly notched. The abdominal *vena cava* perforated the liver. The gall-bladder was of a pyriform figure, pendent at its *apex* to two small folds of *peritonæum* which attach it to the liver. The *ductus communis* entered the *duodenum* 1 inch from the *pylorus*.

The *pancreas* was a broad, flattened, branched gland, with a process given off at the splenic end from the main body, so as to produce, in a transverse section, the figure of the letter T. The pancreatic duct joined the biliary just at its termination. The spleen was situated sinistrad and dorsad of the stomach: its weight was $6\frac{1}{2}$ drachms. Its form was compressed, trihedral and T-shaped, as in the *Kangaroo*, but its lesser process was not so long as in that animal. Mr. Owen considers this form as indicative of a relation, hitherto unsuspected, between the *spleen* and the *pancreas*, the small process of the former corresponding to that of the latter.

The lungs were $3\frac{1}{2}$ inches in length; the right measured $1\frac{3}{4}$ and the left $1\frac{3}{8}$ in breadth: their weight was $8\frac{3}{4}$ drachms. The right consisted of four lobes; the left but of one lobe. The *azygos* lobe was connected to the right lung by the large branches of blood- and air-vessels only, and not by continuity of substance.

The heart, measuring 1 inch and 10 lines in length and 1 inch and 3 lines in breadth, and weighing $9\frac{1}{2}$ drachms, was situated near the middle of the chest. Its form was oblong, pointed at the *apex*. The right auricle rose high above the left. Both auricles had smooth short *appendices*. The *venæ cavæ* were two superior and one inferior. The primary branches of the *aorta* were two, the *arteria innominata* dividing into the right subclavian and the common trunk of the carotids.

The rings of the *trachea* were twenty-three in number and incomplete behind. The first of them rose convexly into the space below the cricoid cartilage. The *larynx* was protected by a large semicylindrical *epiglottis*, slightly emarginate at its *apex*, which extended

into the posterior *nares* above the soft palate, as in other *Marsupialia*. There were two large cuneiform cartilages. There was also a small *sacculus* beneath the *epiglottis*.

The soft palate terminated in a thin arched margin. The tonsils were oblong. The parotid glands were of moderate size and branched, and there was on each of them a small conglobated gland. The submaxillary glands were flattened, of the size of nutmegs, and situated in front of the neck. There was no sublingual gland. A thick row of labial glands extended along the lower lip. The tongue measured 3 inches in length, and had, at the distance of 1 inch from the *epiglottis*, three fossulate *papillæ*. The thyroid glands were separate, each of them being of the size of a horse-bean.

The supra-renal glands were oblong, of the size of horse-beans, and placed anterior to the kidneys: on a section they exhibited a light-coloured exterior layer, then a very dark-coloured substance, and internally became again light-coloured. The kidneys were seated high in the lumbar region, the right being half an inch higher than the left. Each had one pointed *papilla*. The weight of both was 13 drachms.

The ovaries, 3 lines in length and half a line in breadth, were of a flattened oval shape. In the right there was an ovisac coming forward.

There were two *masseter* muscles. The *flexor longus digitorum pedis*, or its analogue, was inserted into the *fibula*, and sent no tendon to the toes, the tendons to them being derived from the muscle analogous to the *flexor longus pollicis pedis*: it is consequently a rotator of the *fibula*, and is described by Home as a peculiar muscle in the *Koala*.

The morbid appearances observed consisted of small tubercles in the lungs and small cysts in the liver. There was a general increased vascularity over the alimentary canal; and the intestines contained bits of straw and bloody mucus.

Mr. Owen also read his Notes on the Anatomy of the *red-backed Pelican* of Dr. Latham, *Pelecanus rufescens*, Gmel.

“The following notes were made on the dissection of one of the smaller-sized grey *Pelicans*, which died at the Society’s Gardens in April 1832. They are now brought forward in order that they may be compared with the results of the dissection of the one which took place at its Museum a few days ago.

“The *Pelican* which I dissected measured 3 feet 7 inches from the extremity of the beak to the vent, and 10½ inches from the extremity of the upper mandible to the nostrils. These are almost concealed slits in the lateral grooves of the upper mandible, just anterior to the skin of the head. They will barely admit the flat end of a probe; and lead almost vertically to the internal apertures of the nasal cavity. The air-cells in the *Pelican*, as in the nearly allied *Bird* the *Gannet*, *Sula Bassana*, Temm., are remarkably extended and diffused over the body: the whole cellular tissue, even to the tips of

the wings and the end of the fleshy part of the legs, can be blown up from the *trachea*.

“The extent to which the skeleton of the *Pelican* is permeated by air has been particularly noted by Mr. Hunter in his celebrated Paper on the air-cells of Birds, in which he throws out a suggestion that it may assist the birds of this species in carrying heavy loads in their large *fauces*. This supposed relation of extended air-cells to a largely developed beak is borne out in the case of the *Hornbill*, in which every bone of the skeleton is permeated by air, but is apparently contradicted by the *Gannet*: I say apparently, because, although the *rami* of the lower jaw do not, in this species, afford suspension to a capacious reservoir as in the *Pelican*, yet the bird may occasionally have to bear away a considerable load as, for instance, in a large fish seized by its mandibles, and a previous accumulation in its dilatable *œsophagus*.

“Mr. Hunter, it may be remembered, was doubtful on the first publication of his Paper as to the source from which the mandibles derived their gaseous contents: not that he was ignorant of the air-holes in the bones, as he is careful to tell us in the reprint of the Memoir in the ‘Animal Œconomy’, where he states that the lower jaw of the “*Pelican* is furnished with air, which is supplied by means of the Eustachian tube.”

“To ascertain the correctness of this description I sawed across the left *ramus* of the lower jaw; but on blowing into the end of the part attached to the head, I found that the air did not escape as I had expected by the Eustachian tube, (the orifice of which is a slit, situated on the roof of the mouth, one inch behind the posterior or internal *nares*,) but filled, first the air-cells under the throat, and then, passing down the neck, raised the large air-cell above the *furculum*. On dissection I found that the air passed into the lower mandible immediately from an air-cell surrounding the articulation between the jaw and *os quadratum*; which received its air from the lungs by means of the cells passing along the neck and throat, &c. The authority of Mr. Hunter ought not to be set aside by the result of a single experiment; and the possibility of accidental rupture may be urged against the above observation; but it is at all events worthy of being recorded, and should be repeated when opportunity occurs, with the addition of blowing into the Eustachian tube, which I omitted to do.

“There is little to be added to the accounts already given in the works of Cuvier, and of Professor Tiedemann and Carus, of the digestive organs of the *Pelican*. The weak or thin-coated stomach, small *cæca*, and short intestines bespeak its animal diet, and the uniformly capacious *œsophagus*, as well as the superadded faucial bag, may be regarded as pointing to the piscivorous habits of this singular species. It is more difficult to assign the use of the globular cavity interposed between the gizzard and the *duodenum*, which the *Pelican* has in common with some of the piscivorous *Grallæ*, viz. those of the genus *Ardea*. In them the pyloric cavity is very small, but

in the *Pelican* it is fully as large in proportion as in the *Crocodiles*, which alone possess it among *Reptiles*. In the *Pelican* here described the pyloric cavity measured $1\frac{1}{2}$ inch in diameter, communicated by a small transverse aperture with the gizzard, and by an opposite one, of smaller size and obliquely placed, with the *duodenum*. Its lining membrane is villous and vascular, and was in this instance tinged with bile, which must have entered by regurgitation, as none of the biliary ducts enter here.

“The *æsofagus* is continued into the *proventriculus* without any marked constriction, and the latter passes insensibly into the part analogous to the gizzard, which is comparatively of small size. The gastric glands are simple elongated follicles, closely compacted together, and extended over nearly the whole *proventriculus*.

“The *duodenum*, after making the usual fold, ascends on the right of the stomach; the intestine is then disposed in three or four coils upon a central mesentery, and then is strung on the edge of the mesentery in long and deep folds, from the last of which the *ileum* passes upwards behind the stomach, and then descends to join the *rectum*. At the point of junction were placed the *cæca*, each $1\frac{1}{2}$ inch in length. The *rectum* is very short, and opens obliquely into a large urinary receptacle; as large, proportionately, as in the *Ostrich*. Before commencing the dissection, a quantity of very fluid urine, of a whitish colour and containing whitish flakes, escaped on pressure being made upon the sides of the *cloaca*.

“The *liver* is bilobed, the right lobe much larger than the left, in which the edges were rounded off. There is a gall-bladder, which contained bile of a yellow colour, not green as in *Birds* generally. The cystic, biliary, and hepatic ducts terminated in the end of the *duodenum*, close to which opened the duct of the *pancreas*. The latter gland was of a less elongated form than usual, being of a rounded figure, and not descending far into the fold of the *duodenum*. The spleen was placed behind the stomach, in length 1 inch, in breadth half an inch.

“The kidneys were of large size, being 4 inches long, 2 deep, and $1\frac{1}{2}$ wide, and, which is very unusual in *Birds*, the right kidney was half an inch higher than the left. Many of the small superficial branches of the ramified ureter which characterizes the kidneys of the oviparous animals were beautifully conspicuous from their white opaque contents. The supra-renal glands were of a light yellow colour, and of a rough or granular pulpy texture; the right adhered closely to the *vena cava*, the left as closely to the ovary, which seemed to be developed partly from the gland and partly from the coats of the left femoral vein. The largest *ova* were nearly of the size of peppercorns and about twenty in number: there were innumerable smaller ones. The oviduct was narrow at its commencement, but gradually attained a diameter of about 4 lines; it passed along the anterior part of the left kidney, adhering thereto by its peritoneal ligament.

“As the *Pelican* belongs to that group of *Natatores*, the *Totipalmes* of Cuvier, which contains species approximating most closely

to the *Raptorial Birds*, and which are almost the only *Birds* of this order, as Cuvier observes, (*Règne An.*, nouv. ed., i. p. 561,) that perch, I did not fail to try the common experiment suggested by Borelli's observations on the effect which bending the leg- and ankle-joints might have upon the toes: the latter, however, exhibited no corresponding inflection. In perfect agreement with this is the observation that the *Pelicans* do not perch when they go to rest."

February 10, 1835.

The Rev. John Barlow in the Chair.

A Letter was read, addressed to the Secretary by W. H. Rudston Read, Esq., giving an account of the habits of the *Hyrax Capensis*, Pall., as observed at the Cape of Good Hope, and also during a voyage thence to England in a specimen brought home by the Rev. Mr. Hennah of H. M. S. Isis, which was presented to the Society after its death by Mr. Read.

“The *Hyrax Capensis*,” Mr. Read states, “is found at the Cape of Good Hope inhabiting the hollows and crevices of rocks, both on the summits and sides of hills, as well as near the sea-shore, even a little above high-water mark. It appears to live in families, and in its wild state is remarkably shy. In winter it is fond of coming out of its hole and sunning itself on the lee side of a rock, and in summer of enjoying the breeze on the top; but in both instances, as well as when it feeds, a sentinel is on the look-out (generally an old male), which gives notice, usually by a shrill prolonged cry, of the approach of danger, or even the least movement of any suspicious object. It lives on the young shoots of shrubs, the tops of flowers, herbs and grass, particularly of all those which are aromatic; which occasions the necessity of paunching the animal as soon as killed, in order to make it fit for eating. The stomachs of those shot by Mr. Hennah were always much distended with food scarcely masticated. In the flavour of its flesh it is very like a rabbit. A friend of mine kept two young ones alive for some time, which became very tame: they would find him out when lying on the sofa or in bed (for they were suffered to run about the house), and climbing up, shelter themselves on his breast within his waistcoat, or creep under the bed-clothes at his back, and lying quiet enjoy the warmth. The one brought home by Mr. Hennah, when allowed to run unconfined about the room, was inclined to be sociable; but was restless and inquisitive, climbing up and examining every person or thing in the cabin, and startling at any noise, which caused it instantly to run and hide itself. But from confinement it became savage and snarling, and tried to bite when anything was put near its cage. Both wild and in restraint it is remarkably clean in its habits, always frequenting and depositing its dung in one place. From its faintly crying in its sleep we may conclude that it dreams. I have also heard it chewing its food by night, when everything has been quiet, and after going into its sleeping apartment. In its food it was pleased with variety, eating first a few leaves of one plant and then of another, and greedily licking salt when given to it. In its passage home its food was In-

dian corn bruised, bread, raw potato, and onion, with a small quantity of water, which in drinking it partly lapped and partly sucked up. It was very sensible of cold; for when a candle was placed near the bars of its cage, it readily acknowledged the little warmth given out by turning its side and sitting still to receive the full benefit of the rays of heat. I am inclined to think that the female does not produce more than two young ones at a time, from having observed in several instances but two following the old ones. Its name at the Cape is the *Dasse*, which is, I believe, the Dutch for a badger."

Mr. Martin's Notes of the dissection of the specimen of *Hyrax Capensis*, presented to the Society by Mr. Rudston Read, were then read.

"The dissection of the *Hyrax* by Mr. Owen ('Proceedings of the Committee of Science, &c.', Part II. p. 202.) is to be regarded as a confirmation of the anatomical details of this animal as given by Pallas, while at the same time it communicates several additional facts of great value. The present notes give nothing absolutely new; but may be of use as substantiating previous observations with regard to some very remarkable points of structure.

"The animal in question was young and of the male sex: its total length was 1 foot 4 inches, that of the head being $3\frac{1}{2}$ inches. On removing the skin, the *panniculus carnosus* was observed to be very strong, especially about the shoulders; and on opening the body, the smallness of the volume of the chest compared with that of the *abdomen* was very striking. The abdominal *viscera* presented themselves in the following order. The liver barely advanced from the right hypochondriac region as far as the epigastric, its left portion covering the cardiac portion of the stomach. Below the liver and to its left the stomach was seated, and below this were the *cæca*, of large dimensions, covering the small intestines, over the whole of which was spread an extensive *omentum*, arising from the great curvature of the stomach.

"The stomach measured in length about 4 inches, and was contracted in the middle: a fleshy sphincter of great thickness closed the pyloric orifice, and was distinctly to be felt. On inverting the stomach, with a view to preserve it thus in spirits, the extent of the cuticular lining of the cardiac portion was found to be $2\frac{1}{2}$ inches: it was irregularly corrugated, and terminated abruptly. Near its edge, towards the great curve of the stomach, were three or four open glands with orifices capable of admitting the tip of a quill. The pyloric portion was lined with the usual villous membrane.

"The liver consisted of four lobes and a *lobulus Spigelii*: it was healthy. There was no gall-bladder; but a biliary duct of $1\frac{1}{2}$ inch in length was found to enter the *duodenum* half an inch below the *pylorus*: the origin of this duct is on the inner aspect of the liver at its base, a separate duct emerging from each lobe to form it by their mutual union.

“The small intestines were not much thicker than a quill for a considerable distance, but gradually increased in circumference: their length was 5 feet 7 inches, and consequently more than a foot greater than the measurement given by Mr. Owen. On their inner coat were observed the little *sacculi* noticed by Mr. Owen, as well as the remarkable *villi*, which are thickly set. The breadth of the mesentery was about $1\frac{1}{2}$ inch. The first or true *cæcum* was contracted into folds by three longitudinal bands, and so made trifid at the extremity: its length was about $2\frac{1}{2}$ inches, its circumference 9. The entrance of the small intestine was succeeded by a sacculated portion (the bands of which were continued from the *cæcum*) contorted spirally, beyond which the intestine, abruptly turning and becoming at once smaller, assumed a sigmoid flexure, gradually enlarging as it proceeded till it merged into two *cæcal* appendages, of a conical figure with an enlarged base and a vermiform termination. The distance between the first *cæcum* and the base of these appendages was found to be 1 foot 7 inches. Below these *cæcal* appendages the large intestine measured $5\frac{1}{2}$ inches in circumference; it, however, gradually but rapidly diminished in size. From this part to its termination the large intestine measured 2 feet 7 inches.

“The *pancreas* was small, irregular, and entirely embraced by the first fold of the *duodenum*: its secretion enters the intestine by two ducts, one terminating along with the biliary duct, the other $\frac{1}{4}$ ths of an inch lower down.

“The spleen was broad and somewhat hatchet-shaped, having a projecting narrow slip from a semilunar base: its length was 2 inches, its breadth 1 inch.

“The heart was bifid at the *apex*; its length $1\frac{1}{2}$ inch, and its breadth $1\frac{1}{4}$. The *larynx* was small; and the *trachea* consisted of 36 rings. The *æsophagus* was smooth. The thyroid glands were small and oval, and $\frac{1}{2}$ inch long. The tongue was $2\frac{1}{2}$ inches in length, smooth, with an elevated projection in the middle, and an obscure furrow running down it, from which diverged transversely several arched depressions. The palate was deeply furrowed with alternate transverse ridges and depressions on each side of a middle line, the ridges on one side corresponding to the depressions on the other.

“The kidneys were flattened; in length they measured $1\frac{1}{4}$ inch, in breadth $\frac{3}{4}$: the *tubuli uriniferi* converged into one large conical *papilla*. The ureters entered the *fundus* of the bladder, not on its dorsal side, (for it lay flat and empty,) but laterally on the edge, piercing the bladder obliquely, as described by Mr. Owen. The supra-renal glands were small greyish bodies, about the size of a pea. The *testes*, the *vesiculæ seminales*, the double prostate gland, and the *penis* were as described by Mr. Owen.

“The *sternum* consisted of six distinct osseous pieces, independent of the xiphoid cartilage, which was shaped like a spade: its length was $2\frac{1}{4}$ inches exclusive of the cartilage. The true ribs were seven in number on each side, and the false ribs fourteen. The cer-

vical *vertebræ* were seven, the dorsal twenty, the lumbar nine, the sacral *vertebræ* (immediately united to the iliac bones) two, and the coccygeal ten, making the total number of *vertebræ* forty-eight. The measurement from the end of the *sternum* to the *ossa pubis*, the animal lying stretched in an easy posture, was 7 inches: the length of the portion of the vertebral column occupied by the heads of the true ribs, $1\frac{1}{2}$ inch; and that of the portion of the vertebral column occupied by false ribs, $3\frac{3}{4}$ inches."

Preparations were exhibited of the *cæcum*, of the urinary bladder, and of other *viscera*, in illustration of the foregoing notes.

The following Notes by Mr. Martin, of the dissection of a *red-backed Pelican*, *Pelecanus rufescens*, Gmel., which recently died at the Society's Gardens, were also read. They refer to the male bird of a pair, the female of which was examined in 1832 by Mr. Owen, whose notes of the dissection were read at the last Meeting.

"The bird was a male, and had been for many years in the Menagerie.

"On removing the skin, a wide space occupied by cellular tissue distended with air, was found to intervene between it and the muscles. This tissue was thin, and subdivided irregularly into numerous cells communicating with each other. Beneath the great pectoral muscle, which was very extensive, there was also a large air-cell, but undivided.

"The osseous structure was light and thin, and the bones of the extremities were remarkable for the extent of their internal cavities and the thinness of their external walls. The *os furcatum* was largely spread, and firmly soldered to the keel of the *sternum*, keeping the shoulders widely apart. The clavicles, or what are regarded as the analogues of the coracoid processes in *Mammalia*, were large, and broadly expanded at their point of union with the *sternum*. The *sternum* was short in proportion to its breadth, measuring $4\frac{1}{2}$ inches longitudinally, and the same across, in a straight line, that is, not following the concavity of its inner surface: its keel was comparatively but little developed; it is thrown forwards, however, as far as possible, and projects in a point where it is ossified to the *os furcatum*. Its greatest depth is 1 inch 2 lines.

"On exposing the *viscera* they were found to occupy a truly abdominal situation, being placed in a small compass and as far backwards as possible. The *œsophagus* passed on for a considerable distance internally, before entering the *proventriculus*.

"The inferior *larynx* was destitute of muscles: the bone of divarication was strong and well defined.

"The liver consisted of two lobes, a large and a small one, united by a broad flat process $\frac{3}{4}$ ths of an inch in length. The large lobe measured $2\frac{3}{4}$ inches in length and 2 in breadth; the thickness of its substance being 1 inch. The small lobe was $1\frac{1}{4}$ inch long and $\frac{3}{4}$ broad.

“ The *pancreas* consisted of two lobes united by an intervening slip or narrow portion, through which passed an hepatic duct running from the liver to the intestine.

“ The biliary and hepatic ducts entered the intestine a foot below the stomach (gizzard) as follows :

- 1st, Hepatic duct;
- 2nd, Pancreatic duct;
- 3rd, Cystic duct.

“ The intestines were thin and worm-like, their mean diameter being $\frac{1}{4}$ th of an inch. Their total length was 8 feet.

“ The *vena portæ* ran close to the *pancreas*, and was dilated into a large sinus before entering the liver.

“ The lining membrane of the gullet was thrown into longitudinal *plicæ* throughout its whole length, but they became larger and less numerous towards the lower part, and the membrane itself increased in toughness and density as it approached the *proventriculus*. The muscular tunics consisted of an internal longitudinal and external circular layer of fibres; these fibres on the pouch were very fine and delicate, but became stronger and more distinct as the gullet proceeded from this extensible portion.

“ The appearance and shape of the *proventriculus* were very remarkable; instead of its being a gradual dilatation of the gullet, it commenced abruptly, and its *parietes* were firm and muscular, inso-much that it might readily have been mistaken at first for a gizzard. Its length, including that of the gizzard (which forms with it a common cavity), was 5 inches, and its circumference 4. The internal membrane was puckered into longitudinal *rugæ*, and was studded with closely set glands of the size of large pin-heads. The longitudinal muscular fibres were remarkably strong, and a muscular slip proceeding obliquely from the side of the gizzard attached the pyloric enlargement to it.

“ The pyloric enlargement was about the size of a common garden-bean. A passage $\frac{3}{4}$ ths of an inch in circumference and $\frac{3}{4}$ ths long, turning up abruptly, led to it from the stomach. The lining membrane of this passage was thrown into longitudinal folds. The lining membrane of the pyloric cavity itself was thin, and not at all coriaceous, and the muscular tunic fine. A valvular fold encircled the opening into the succeeding portion of the *pylorus*.

“ The *testes* were as large as peas, or rather larger, white and oval.

“ The cervical *vertebræ* were 15 in number.

With reference to the bony union of the *os furcatum* to the *sternum* observed in this *Pelican*, Mr. Martin remarks that “ in the *Adjutant*, *Ciconia Argala*, Vig., though the keel of the *sternum* is much more extensive, deep, and strong, the *os furcatum* much resembles that of the *Pelican*, and is in like manner ossified to its anterior *apex*. In the common *Heron*, *Ardea cinerea*, Linn., the *os furcatum* is feeble, but is also united by bone to the *apex* of the keel of the *sternum*: at

its point of union a projection or short process is directed upwards; the keel of the *sternum* is here very ample. These are birds not so much of rapid as of untiring powers of flight, which, unlike that of the impetuous *Falcon*, is sweeping and majestic. In the *Falconidæ* the *os furcatum*, though very strong, does not at all approach to the form of a triangle, as in the birds alluded to, but describes a figure not unlike that of a horse-shoe, and a considerable space intervenes between it and the keel of the *sternum*."

A Paper was read, entitled, "Characters and Descriptions of a new Genus of the Family *Melolonthidæ*: by John Curtis, Esq., F.L.S., &c."

In a collection of *Insects* recently received by the author from Lima is contained a beautiful series of the one constituting the type of his proposed new genus

ANCISTROSOMA.

Antennæ capite breviores.

Clypeus, in mare præsertim, emarginatus.

Thorax acutè marginatus, hexagonus; dente brevi in baseos medio armatus.

Pedes longissimi, robusti.

The stoutness of its legs and the sharp lateral edges of its *thorax* distinguish *Ancistrosoma* from all the neighbouring genera: the male is further characterized by an acute, rather long, and slightly curved spine near the base of the *abdomen* beneath. Its natural situation is probably between *Diphucephala*, Dej., the males of which have a bilobed *clypeus*, and *Macrodactylus*, Latr., which is very similar to it in habit, and has also very long legs; but these in *Macrodactylus* are slender, while in *Ancistrosoma* they are robust. Neither *Diphucephala* nor *Macrodactylus* possesses the little tooth at the base of the *thorax* lapping over the *scutellum*, a structure which is, however, met with in *Ceraspis* as well as in *Ancistrosoma*; but in *Ceraspis*, independently of the other differential characters, the *antennæ* and club are long.

ANCISTROSOMA KLUGII. *Anc. ferrugineum*, suprâ piceo-nigrum; *thoracis margine elytrorumque strigis sex albidis*.

Long. maris 12 lin.; fœminæ plerumque minor.

Hab. in *Mimosæ* floribus apud Huanuco prope Lima, Peruvix.

Of the three streaks on each of the *elytra*, the sutural one does not reach so far as the base, the second extends neither to the base nor to the tip, and the outer one is still shorter: they consist of broad punctured furrows, white with short hairs.

The cocoon of the *pupa* is ovate, hard, and in texture somewhat like that of *Trichiosoma Lucorum*, Leach; its *operculum* is semiorbicular, with a broad hinge and narrow rim: the shell of the *pupa* is similar to that of other *Melolonthidæ*.

Mr. Curtis describes in great detail the several parts of this *In-*

sect, and illustrates them by an extensive series of drawings, which were exhibited; as were also specimens of the *Insect* itself.

Mr. Curtis also communicated a Paper "On a species of *Moth* found inhabiting the *Galls* of a Plant, near Monte Video." The galls in question were collected by Mr. Earle (who accompanied Captain Fitzroy in H. M. S. Beagle,) in the month of December, about fifteen miles westward of the town, on a sort of underwood shrub, which Mr. David Don, on the examination of the small branches, and of a single leaf, thinks may probably be a species of *Celastrus*. Of the figures in illustration of the paper exhibited to the Meeting, one represents a branch supporting two of the galls, which are sometimes clustered five or six together. They arise where the attachment of leaves or flowers is indicated, and are therefore most probably produced by the transformation of the buds themselves, acted on by the *stimulus* of the insect secretions. On the side of each gall is a round aperture, with an *operculum* accurately fitted to it, which may easily be picked out with the point of a penknife. This *operculum* is equally convex on its outer surface with the rest of the gall, and is of the same thickness; but its internal diameter is less than that of its external surface, which forms a broader rim. Around the orifice the margin of the gall is thickened and a little raised. Within each of the entire galls was found a *pupa* attached to the base by its tail, with its head close to the *operculum*; which, it should seem, gives way by a slight expansion or elongation of the *pupa* when just ready to hatch, and the cast skin is left sticking in the passage.

Mr. Curtis observes that he was very much surprised to find on examination that the *pupæ* contained in these galls belonged not to the *Hymenoptera* but to the *Lepidopterous* order; an occurrence hitherto almost unprecedented. The characters of the *Insect*, as far as could be detected from the imperfect state in which it was found, are as follows:

CECIDOSES.

Caput parvum.

Antennæ corpus longitudine æquantes, graciles, ciliatæ, articulis elongatis numerosis: in capitis vertice prope oculos insertæ.

Thorax squamulis depressis vestitus.

Abdomen subrobustum, ovato-conicum.

Pedes longi; *tibiis* anticis spinâ prope apicem munitis, intermediis posticisque ad apicem calcaratis, his densè squamulatis et in medio præterea bi-spinosis; *tarsis* 5-articulatis, articulo basali longissimo; *unguibus pulvillisque* minutis.

Alæ sublanceolatæ.

CECIDOSES EREMITA. *Cec. cinereus*; *alis anticis saturatè brunneo maculatis, densè ciliatis; posticis albidis.*

Hab. prope Monte Video. *Pupa* in gallis *Celastri*? abscondita.

From the stoutness of the body Mr. Curtis is inclined to refer the

Moth to the *Tortricidæ*; if belonging to *Pyralidæ* or *Crambidæ*, its *palpi* should be more strongly developed, but neither they nor the *maxillæ* were discoverable.

Figures of the imperfectly developed moth and of several of its parts, as well as of the galls and their *opercula*, together with specimens of the latter, were exhibited in illustration of the paper.

February 24, 1835.

William Yarrell, Esq., in the Chair.

A Letter was read from Lady Rolle, addressed to the Secretary, giving an account of the birth of two young *Monkeys*, the produce of a pair of *Ouistitis (Jacchus penicillatus*, Geoff.) in her Ladyship's possession. The parents were obtained in London during the last summer, and the young were produced on the 1st of January: one was born dead, but the other still survives, being about six weeks old. It appears likely to live, and is every day put on the table at the dessert, and fed upon sweet cake. Lady Rolle states that the mother takes great care of it, exactly in the manner described by Edwards in his 'Gleanings,' p. 151, pl. 218; where the animal is figured and described under the name of the *Sanglin*.

It was observed that young of the same species had been born at the Society's Gardens, but not living; and that a female in the collection of the President, the Earl of Derby, at Knowsley, had produced, about the same time as Lady Rolle's, two living and healthy young ones, which are still thriving.

Mr. Gould exhibited a living specimen of the *red-billed Toucan*, *Ramphastos erythrorhynchus*, Gmel., which had recently come into his possession.

The exhibition was resumed of the new species of *Shells* contained in the collection of Mr. Cuming. Those brought at the present Meeting under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby.

GENUS VENUS.

VENUS COLUMBIENSIS. *Ven. testá rotundato-ellipticá, crassá, cinereo albidoque variegatá, radiatim costatá, costis plurimis, planulato-rotundatis, quam interstitia duplò latioribus; latere antico brevior, costis decussatim squamosis, squamulis brevibus, obtusis; lateris postici costis rugosis; partis intermedie costis sublaevibus; intùs albicante: long. 2·2, lat. 1·3, alt. 1·9 poll.*

Hab. ad Sanctam Elenam Columbiae Occidentalis.

Found in coarse sand at low water.—G. B. S.

VENUS SUBIMBRICATA. *Ven. testá cordato-subtrigoná, crassá, fusco albidoque radiatim lineatá vel variegatá, costellis radiantibus confertis, costis subimbricatis decussantibus, prope umbonem lamellis; latere antico brevior, impressione cordatá anticá magná; latere postico longior, declivi, planato, depresso; margine ventrali rotundato, intùs denticulato: long. 1·6, lat. 1·, alt. 1·6 poll.*

Hab. ad Portam Portreram Americae Centralis.

Found in fine sand in thirteen fathoms.

Variat testá parvâ longiore, costis decussantibus omnibus lamelliferis : long. 0·8, lat. 0·4, alt. 0·7 poll.

Hab. ad Acapulco.—G. B. S.

VENUS UNDATELLA. *Ven. testá rotundato-ellipticâ, crassâ, albidâ fusco maculatâ punctatâ et undatim pictâ, costellis radiantibus confertis, aliisque decussantibus undulatis sublamellosis; latere antico breviorè, postico subdeclivi, marginibus depressis; margine ventrali rotundato, intùs crenulato: long. 1·6, lat. 1·, alt. 1·5 poll.*

Hab. in Sinu Californiensi. (Island of Tres Marias.)

Found on the shore.—G. B. S.

VENUS DISCREPANS. *Ven. testá ellipticâ, crassâ, albicante, fusco subradiatim pictâ; latere antico breviorè, subproducto; postico subdeclivi; marginibus depressis; costis concentricis posticè lamellosis, medio obtusis, latiusculis, anticè sublamellosis; umbonibus subprominentibus; margine ventrali rotundato, intùs denticulato: long. 1·4, lat. 0·8, alt. 1·25 poll.*

Hab. ad oras Peruviae. (Islay.)

The blunt, rather broad, concentric ribs of the middle part of each valve are speckled with brown on their upper surfaces, and delicately crenulated on their ventral margins.

Found in muddy sand at a depth of sixteen fathoms.—G. B. S.

VENUS MULTICOSTATA. *Ven. testâ ellipticâ, ventricosâ, crassâ, concentricè multicostatâ, costis reflexis, crassis, anticè undulatis, medio crenatis, posticè alternatim interruptis, subirregularibus, subundulatis; marginibus dorsali rectiusculò, ventrali rotundato; impressione cordiformi anticâ distinctâ: long. 4·3, lat. 2·7, alt. 3·7 poll.*

Hab. in Sinu Panamæ.

This is perhaps the largest species known. It is a very handsome shell, of a pale fawn colour, with several darker rays, somewhat divided into spots.

Found in coarse sand at low water.—G. B. S.

VENUS PERUVIANA. *Ven. testâ obovatâ, crassâ, concentricè costatâ, costis crassiusculis, sublamellosis, anticè reflexis, medio reflexis, fulvo articulatis, posticè deflexis, tenuioribus; latere postico quam anticum duplò longiore, marginibus depressis, planatis; margine ventrali rotundato, intùs lævi: long. 2·3, lat. 1·2, alt. 1·9 poll.*

Hab. ad oras Peruviae. (Ancon.)

Found in soft mud at a depth of five fathoms.—G. B. S.

VENUS AUSTRALIS. *Ven. testâ ovato-subtrigona, crassiusculâ, fulvescente maculis angulosis subtrigonis subradiatim pictâ, concentricè lamellosâ, lamellis concinnis confertis, tenuibus, obtusis, pulcherrimè radiatim decussatis, prope latera elevatioribus; marginibus dorsali subelevato, ventrali rotundato, intùs denticulato: long. 1·1, lat. 0·55, alt. 0·9 poll.*

Hab. ad oras Australiæ. (Swan River.)—G. B. S.

VENUS SPURCA. *Ven. testá ovatá, crassá, sordidè fulvá fusco radiatim maculosá, concentricè subobsoletè costellatá, costellis obtusis, prope latera subinterruptis; margine ventrali intùs denticulato: long. 1·1, lat. 0·6, alt. 0·9 poll.*

Hab. ad Valparaiso.

Found in coarse sand at a depth of from thirty to fifty fathoms.

—G. B. S.

GENUS CYTHEREA.

CYTHEREA RADIATA. *Cyth. testá subtrigoná, subæquilaterá, gibbosá, pallescente brunneo radiatá et undulatim pictá, lævi, epidermide corneá crassiusculá plus minusve indutá; lateribus antico posticoque ventrem versus rotundatis; margine ventrali rectiusculo, intùs lævi: long. 2·5, lat. 1·5, alt. 2· poll.*

Hab. ad oras Columbiae Occidentalis. (Salango and Xipixapi.)—G. B. S.

This species belongs to that division of the genus which has four cardinal teeth, and is destitute of the cordiform anterior impression.

Found in sandy mud at a depth of nine fathoms.—G. B. S.

CYTHEREA UNICOLOR. *Cyth. testá ovato-subcordiformi, crassiusculá, brunnescente, lævi, politá; lateribus antico posticoque concentricè sulcatis, sulcis medio obsoletis; latere postico longiore, versus partem ventralem subacuminato; margine ventrali lævi, intùs purpurascete: long. 1·6, lat. 0·75, alt. 1·3 poll.*

Hab. ad Real Llejos Americæ Centralis.

Variat testá majore, albicante.

Found in coarse sand at a depth of six fathoms.—G. B. S.

CYTHEREA CONCINNA. *Cyth. testá ovato-subcordatá, crassiusculá, rubente albicante radiatá; latere postico longiore, subacuminato; costellis numerosis, concentricis, obtusis, concinnis, confertis: long. 1·6, lat. 0·8, alt. 1·2 poll.*

Hab. ad Panamam.

Found at a depth of ten fathoms in fine sand.—G. B. S.

CYTHEREA SQUALIDA. *Cyth. testá ovato-subcordatá, crassiusculá, lævi, pallidè fuscá, nonnunquam maculis irregularibus saturatioribus; epidermide fuscá; latere postico longiore, prope partem ventralem subacuminato: long. 2·7, lat. 1·3, alt. 2· poll.*

Hab. ad Sanctam Elenam.

This shell bears some resemblance to *Cyth. maculosa*. It has generally a very dull and dirty aspect. One of the several varieties in Mr. Cuming's collection is rather agreeably ornamented with concentric purple bands.

Found in sandy mud at a depth of six fathoms.—G. B. S.

A paper was read by Mr. Owen, entitled, "Description of a Microscopic *Entozoon* infesting the Muscles of the Human Body." The author observes, that upwards of fifteen different kinds of internal parasites are already known to infest the human body, but none have been found of so minute a size, or existing in such astonishing num-

bers, as the species about to be described. The muscles of bodies dissected at Saint Bartholomew's Hospital had been more than once noticed by Mr. Wormald, the Demonstrator of Anatomy at that establishment, to be beset with minute whitish specks; and this appearance having been again remarked in that of an Italian, aged 45, by Mr. Paget, a student of the hospital, who suspected it to be produced by minute *Entozoa*, the suspicion was found to be correct, and Mr. Owen was furnished with portions of the muscles, on which he made the following observations.

With a lens of an inch *focus* the white specks are at once seen to be cysts of an elliptical figure, with the extremities in general attenuated, elongated, and more opaque than the body (or intermediate part) of the cyst, which is sufficiently transparent to show that it contains a minute coiled-up worm. On separating the muscular *fasciculi*, the cysts are found to adhere to the surrounding cellular substance by the whole of their external surface, somewhat laxly at the middle dilated part, but more strongly by means of their elongated extremities. When placed on a micrometer, they measure $\frac{1}{30}$ th of an inch in their longitudinal and $\frac{1}{100}$ th of an inch in their transverse diameter, a few being somewhat larger, and others diminishing in size to about one half of the above dimensions. They are generally placed in single rows, parallel to the muscular fibres, at distances varying from $\frac{1}{2}$ a line to a line apart; but sometimes a larger and a smaller cyst are seen attached together by one of their extremities, and they are occasionally observed slightly overlapping each other.

If a thin portion of muscle be dried and placed in Canada balsam, between a plate of glass and a plate of talc, the cysts become more transparent, and allow of the contained worm being more plainly seen. Under a lens of the *focus* of $\frac{1}{2}$ an inch, the worm appears to occupy a circumscribed space of a less elongated and more regularly elliptical form than the external cyst, as if within a smaller cyst contained in the larger: it does not occupy more than a third part of the inner space. A few of the cysts have been seen to contain two distinct worms; and Mr. Farr, who has paid much attention to the subject, exhibited a drawing of one of the cysts from this subject, containing three distinct worms, all of nearly equal size. Occasionally the tip of one of the extremities of the cyst is observed to be dilated and transparent, as though a portion of the larger cyst were about to be separated by a process of gemmation; and these small attached cysts are seen of different sizes, and, as it were, in different stages of growth. This appearance, however, Mr. Owen conceives to be explicable without a reference of a power of independent vitality to either of the adherent cysts. The cysts are composed of condensed and compacted *lamellæ* of cellular tissue; but a few are hardened by the deposition of some earthy salt, so as to resist the knife and to produce a gritty sensation when broken under pressure.

When removed from the interior of the cyst, which, on account of the minuteness of the object, is a matter of some difficulty, the worm is usually found to be disposed in two or two and a half spiral coils. When straightened it measures from $\frac{1}{5}$ th to $\frac{1}{30}$ th of an inch in length,

and from $\frac{7}{100}$ th to $\frac{1}{100}$ th of an inch in diameter: a high magnifying power is consequently required for its examination. It is round and filiform, terminating obtusely at both extremities, which are of unequal sizes, and tapering towards one end for about a fifth part of its length, but continuing of uniform diameter from that point to the opposite extremity. As it is only at the larger extremity that he has been enabled to distinguish an indication of an orifice, Mr. Owen regards that as the head. He states that this indication has been so constant in a number of individuals examined under every variety of circumstance, that he has no hesitation in ascribing a large transverse linear orifice or mouth to the greater extremity.

The recently extracted worm, observed by means of a Wollaston's doublet, before any evaporation of the surrounding moisture has affected its integument, presents a smooth transparent external skin, inclosing a fine granular and flaky substance or *parenchyma*. It is obvious that the test of coloured food cannot here be applied to elucidate the form of the digestive organs, but there is no appearance of the *parietes* of an alimentary canal floating in a visceral cavity and distinct from the integument of the body, nor was any trace of an orifice observed at the smaller extremity. Mr. Owen was also unable to detect in any instance a projecting *spiculum* or hook at either extremity, or any appearance of the worm having been torn from an attached cyst. Its transparency is such as not to admit of a doubt as to its wanting the ovarian and seminal tubes, and the other characteristics of the complicated structure of *Filaria*, *Ascaris*, and the *Nematoid Entozoa* generally. It is not of a rigid texture, but is extremely fragile, and exhibits when uncoiled a tendency to return in some degree to its former state.

Mr. Owen refers to the genus *Capsularia* as established by Zeder, and rejected by Rudolphi, (who considers its species as belonging either to *Filaria* or *Ascaris*,) for the purpose of contrasting the complicated organization of the worms composing it with the extremely simple structure of the encysted worm under consideration. The circumstance of being inclosed in cysts he stated to be common to many very differently organized genera of *Entozoa*. There are few, indeed, with the exception of those which live upon the mucous surfaces of the body, that do not, by exciting the adhesive inflammation, become inclosed within an adventitious cyst of condensed cellular substance. He regards the simple type of structure exhibited by the minute animal now for the first time described as approximating it to the lower organized groups of the *Vers Parenchymateux* of Cuvier; and both from its locality and from the constancy of its cysts, he regards it as manifesting a relation of analogy to the order *Cystica* of Rudolphi. From all the genera of that order, however, it differs in the want of the complex armature of the head, and of the dilated vesicle of the tail. At first sight it seems indicative of an annectant group which would complete the circular arrangement of the *Entozoa* by combining the form of the *Filaria* of the first, with some of the characteristics of the *Cysticerci* of the last, of Rudolphi's orders. Unfortunately the class *Entozoa*,

as it now stands, is so constituted that an animal may be referred to it without much real or available knowledge of its organization being thereby afforded: it embraces animals with the molecular, and others with the filiform, condition of the nervous system; conditions which are accompanied by different types of the digestive system, and which indicate not merely differences of class, but even of primary division, in the animal kingdom. Mr. Owen considers the animal under consideration as being most nearly allied to that form of the *Polygastric Infusoria* which is exhibited by the lower organized *Vibriones* of Müller, and of which Ehrenberg has composed his genera *Vibrio*, *Spirillum*, and *Bacterium*; and that, like the seminal *Cercaria*, it may be regarded as an example from the lowest class of the animal kingdom having its *habitat* in the interior of living animal bodies. Referring it, however, provisionally, to the class *Eutozoa*, in which it would indicate a new order, its generic character may be thus given:

TRICHINA.

Animal pellucidum, filiforme, teres, posticè attenuatum: ore lineari, ano discreto nullo, tubo intestinali genitalibusque inconspicuis. (In vesicâ externâ cellulosâ, elasticâ, plerumque solitarium.)

TRICHINA SPIRALIS. *Trich. minutissima, spiraliter, rarè flexuosè, incurva; capite obtuso, collo nullo, caudâ attenuatâ obtusâ. (Vesicâ externâ ellipticâ, extremitatibus plerumque attenuatis elongatis.)*

Hab. in hominis musculis (præter involuntarios) per totum corpus diffusa, creberrima.

Mr. Owen further states that within about a fortnight of the former case, a second body similarly affected had been brought into the dissecting-room of Saint Bartholomew's Hospital; and some notes were furnished by Mr. Paget, who first observed the worms in the Italian, with regard to the cases of the two patients while living in the Hospital. From these it appeared that both had died after long and debilitating illness, producing great emaciation, unaccompanied, however, with any eruption on the skin, or any greater loss of muscular power than would probably have arisen from the diseases of which they died. The occurrence of two cases in the same dissecting-room within so short a period of each other, and the recollection of similar appearances being not unfrequently present in other bodies dissected there, combined with an account published in the Medical Gazette for February 2, 1833, of very small *Cysticerci* occurring in the muscles of a subject at Guy's Hospital, which cannot but be considered referrible to the same cause, render it highly probable that a sufficient number of observations will soon occur to elucidate this curious disease. In two of the cases the emaciation was accompanied by external, and in the third by internal, ulceration; but no connexion was traced between the worm and any of the symptoms of the disease.

In a portion of muscle placed, after it had reached a state of incipient putrescence, in spirit of wine for three days, the worms, when pressed out from their cysts, exhibited languid, but sufficiently evi-

dent motions, consisting in the tightening and relaxation of their coils: and more languid motions were afterwards noticed in some specimens that were examined a fortnight after the death of the subject from which they were obtained.

Mr. Owen enters at some length into the question of the origin of the cyst, and after comparing its structure and connexions with various more or less analogous productions, he states his opinion that the cyst is adventitious, foreign to the *Entozoon*, and composed of the cellular substance of the body infested, morbidly altered by the irritation of the worm.

The reading of the paper was accompanied by the exhibition of drawings showing portions of the infested muscle, with magnified representations of the cysts and of the worms contained within them; and specimens of the objects themselves were also placed upon the table for examination with the aid of Mr. Pritchard's microscope, lent by him for that purpose.

Mr. Owen also read a Paper "On the Anatomy of *Linguatula Tenuoides*, Cuv." After referring to the observations on the anatomical structure of this highly organized *Entozoon*, published by Cuvier and Rudolphi, he proceeds to state the results of his own dissection of a fine specimen, $3\frac{1}{2}$ inches in length, for which he was indebted to Mr. Langstaff. The whole body is invested with a smooth, transparent, rather fine cuticle, which, from maceration, and probably slight decomposition, had become detached. In this *epidermis* there exist no marks of an annulate structure; but the *cutis*, or muscular *parietes* of the body, is distinctly divided into segments slightly overlapping each other, and most obvious on the sides of the body, which are its thickest and most muscular portions. The dorsal and ventral *parietes*, on the contrary, are so transparent as to allow of the contained parts being readily seen through them.

The most essential difference between *Linguatula* and the *Cestoides*, among which it was first placed by Chabert, consists in the generative organs being androgynous, with the oviduct continued from one end of the body to the other. Rudolphi, uncertain with regard to the structure of the digestive organs, placed it among the *Trematoda*; but the specimen under examination affords conclusive evidence of the justice of Cuvier's removal of it to the *Nematoidea*. The alimentary canal commences at the central *foramen*, or true mouth, and runs straight to the opposite extremity of the body, terminating immediately above the orifice of the genital tube; the *oesophagus* being $\frac{1}{3}$ rd of a line in length, and opening into a suddenly dilated canal, which continues with little variation of diameter to the *anus*.

At the distance of a line posterior to the mouth, on the ventral aspect of the body, the narrow extremities of two elongated vesicles, 3 lines in length and more than $\frac{1}{2}$ a line in diameter, adhere firmly to the integument, the remainder hanging freely in the abdominal cavity. These Mr. Owen considers to be analogous to the impregnating glands of the hermaphrodite *Rotifera*, &c. The ovary, which is distinct from the tube so called by Cuvier and Rudolphi, is a nar-

row, elongated, minutely granulated body, extending along the mesial line of the dorsal *parietes* of the body for the extent of its two anterior thirds: about $\frac{1}{2}$ an inch from the head it gives off two slender capillary tubes, which unite below the origins of the lateral nerves, and enter the commencement of the oviduct. The commencement of this tube, formed by the junction of the two ducts just mentioned with those of the seminal vesicles, is very narrow: in the greater part of its course it is coiled in numerous and complex gyrations around the intestine, but towards the lower third of the body its coils become fewer and more distant, the brown *ova* are seen in scattered masses, and at length it runs parallel with the intestine straight to the *anus*. It is widest at the commencement of the coils; then becomes narrower; and afterwards continues of the same diameter to its termination.

The cerebral *ganglion* mentioned by Cuvier was very conspicuous in the specimen here described: it is situated between the mouth and the commencement of the oviduct, and is consequently sub-*œsophageal*. Eight pairs of nerves may be distinguished going from it in a radiated manner. This radiated disposition of the nervous system is similar to that which obtains in the *Slug* (*Limax*); and it may also be observed that the disposition of the muscular system in *Limax* is analogous to that of *Linguatula*, being most developed at the sides of the foot, and least along the middle line, which is thin and semi-transparent when viewed against the light. If it were allowable to trace further the analogy of form subsisting between genera so widely separated, the two *fossæ* with their little hooks on either side the mouth of *Linguatula*, might be compared with the two depressions, which, when the *tentacula* are retracted, may be seen in the same situation in the head of the *Slug*. It is the superior organization of these parts, required for its superior powers of locomotion, that renders necessary the further development of the nervous system in the *Slug*; and the completion of the cerebral ring and the development of the supra-*œsophageal ganglia* constitute the chief difference between it and *Linguatula* in this part of their organization. In like manner the action of the muscles in the *Slug* occasions waste, and demands a proportionate supply of new material; and hence the necessity of the superaddition of a sanguineous system for the carriage of the restorative molecules, of a more complex digestive apparatus for their supply, and of respiratory and secretory organs for the elimination of the waste parts of the body. In *Linguatula*, on the contrary, the sphere of action being limited to a dark cavity, the necessity for the superadded structures does not exist; its food, already animalized, requires only a simple canal to complete its assimilation; neither heart nor vessels are conspicuous; and it is probable that nutrition is effected by transudation and imbibition.

The reading of Mr. Owen's Paper was accompanied by the exhibition of drawings in illustration of the structures described in it,

March 10, 1835.

William Yarrell, Esq., in the Chair.

Specimens were exhibited of several species of *Trogon*, partly from the Society's collection, and partly from that of Mr. Gould; and, at the request of the Chairman, Mr. Gould called the attention of the Meeting to some of the more interesting among them.

One of them was the *Bird* represented by M. Temminck, in his 'Planches Coloriées', under the name of *Trog. fasciatus*; and on this Mr. Gould remarked, that having had an opportunity of examining the drawing made by Forster, on which Pennant's original description was founded, he had ascertained that it represented a species altogether distinct from M. Temminck's *Bird*, and much more nearly resembling *Trog. Malabaricus*. As the name of *Trog. fasciatus* must necessarily remain with the species originally described under it, the one figured by M. Temminck requires another designation; and Mr. Gould proposed for it that of *Trog. Temminckii*.

Another, was the splendid species figured by M. Temminck, in the same work, under the name of *Trog. pavoninus*, a name by which it is now generally known; but on referring to M. Spix's 'Avium Brasiliensium Species Novæ,' the original description and figure of *Trog. pavoninus*, Spix, appear to Mr. Gould to have reference to a totally different species, distinguishable by its smaller size, by the absence of crest from its head, by the comparative shortness of its hinder back plumes (which do not extend more than a few inches beyond the tail), and by the whole of the tail-feathers being black. The species exhibiting the peculiarities just adverted to will, of course, retain its original name of *Trog. pavoninus*; for the other Mr. Gould proposed that of

TROGON RESPLENDENS. *Trog. plumis capitis notæique laxis, lanceolatis, illius cristam efformantibus, hujus posterioribus longissimis, tripedalibus; supra et ad guttur pectusque splendè aureo-viridis; ventre crissoque coccineis; rectricibus sex intermediis nigris, cæteris albis ad apicem tantummodo nigris.*

Fœm.? vel Junior? Capite, gutture, pectoreque obscurè viridibus; dorso viridi; ventre cinerascanti-brunneo; crisso coccineo; capite subcristato; tectricibus caudæ superioribus brevioribus; rectricibus externis tribus utrinque albis nigro fasciatis.

Rostrum flavum, in fœminâ? juniore? nigrum: tarsi brunnei.

Hab. in Mexico in provinciis Austrum spectantibus.

Mr. Gould also characterized two species, hitherto apparently undescribed.

TROGON AMBIGUUS. *Trog. capite guttureque nigris; pectore, cervice, dorso, caudæque tectricibus superioribus viridibus; alis brunneo-nigris, in medio cinereis lineis gracilibus flexuosis transversim notatis; rectricibus duabus intermediis proximarumque duarum utrinque pogoniis externis cupreo-viridibus, harum pogoniis internis omniumque apicibus nigris, reliquis ad basin nigris, ad apicem albis, in medio albis maculis parvis numerosis sparsis nigris.*

Long. tot. 12 unc.; *alæ*, 5½; *caudæ*, 7½.

Rostrum flavum: tarsi brunnei.

Hab. in Mexico in plagis Septentrionalibus.

This *Bird* is very nearly related to *Trog. elegans*, a species characterized by Mr. Gould at the Meeting of the Society on April 8, 1834, (Proceedings, Part II. p. 26). It differs by having the outer tail-feathers obscurely and finely dotted, while in *Trog. elegans* they are marked by strong and well-defined bars; and by having the middle of the wing much more finely and minutely barred than the latter bird. These distinctions, although apparently trivial, having been observed by Mr. Gould in many specimens, and the individuals seen by him of *Trog. ambiguus* having been brought exclusively from the northern, while those of *Trog. elegans* have all been collected in the southern states of Mexico; he is induced to regard the two *Birds* as being, very probably, specifically distinct.

TROGON CITREOLUS. *Trog. vertice, collo, dorso, guttureque cærulescenti-viridibus; rectricibus duabus intermediis ad apicem, proximarum duarum utrinque pogoniis internis, reliquisque ad basin nigris, his apicem versus albis; ventre citrino in aurantiacum vergente; alis brunnescenti-nigris, rectricum pogoniis externis albo fimbriatis.*

Fœm. *Capite, gutture, dorsoque saturatè cinereis; rectricibus sex intermediis brunnescenti-nigris: in cæteris mari simillima.*

Long. tot. 10½ unc.; *alæ*, 5½; *caudæ*, 6; *rostri*, a rictu ad apicem, 1.

Rostrum cærulescenti-corneum.

Hab.

This species differs from *Trog. violaceus* by its smaller size, the lighter colour of its under surface, and the great extent of the white at the ends of the outer tail-feathers.

Mr. Owen commenced the reading of a Paper "On the comparative Osteology of the *Orang* and *Chimpanzee*." He stated that he was indebted to Mr. Walker for the opportunity of examining and describing in detail the skeleton of an adult *Chimpanzee*, obtained by that gentleman a few years since from the west coast of Africa, which had enabled him to compare it with that of the young animal. This comparison evidenced in that species a series of changes, in the advance towards maturity, analogous to those which take place in the *Orang* and the *Pongo*, and consequently afforded a strong confirmation of the opinion which regards the latter animal as the adult of the former.

The general appearance and proportion of the *Chimpanzee*, Mr. Owen remarks, are unquestionably the most anthropoid that the *Quadrumanous* order presents; but many marked and essential differences are observable upon a close comparison. The skull of the adult is of a narrow elongated ovate figure, slightly contracting towards the anterior part, which is, as it were, truncated, from the depth and direction of the *symphysis* of the lower jaw. Compared with the rest of the body it is of small size, owing to the arrested development of the cerebral portion, which, as in other *Quadrumana*, is altogether posterior, the face sloping forwards in the adult animal, at an open angle, as in the *Baboons*. Its exterior surface is devoid of the intermuscular frontal and sagittal crests which give so strong a carnivorous character to the skull of the *Orang*. The extent of the origin of the temporal muscles is, however, readily traceable by a slightly elevated ridge of bone: it differs considerably in the adult and in the foetal skulls, but exactly accords with the increase in the power of mastication required for the due action of the large permanent teeth. It is possible that the slight development of the intermuscular crest may be a sexual character; for in an adult female *cranium* of the *Orang*, the crest was scarcely more prominent than in the *Chimpanzee*: in the latter, however, its development is less to be expected, in consequence of the smaller comparative size of the canine teeth. The muscular impressions on the occipital region are also less strongly marked than in the *Orang*, in which the occipital *foramen* is nearer the posterior plane and its position is more oblique. There is a greater proportion of brain behind the *meatus auditorius externus* in the *Chimpanzee* than in the *Orang*, and this disproportion is much greater in the adult than in the young. Considerable changes also take place in the relations of the *meatus auditorius* with the glenoid cavity for the articulation of the lower jaw, in consequence of the increased development of the maxillary apparatus, while the *cranium* remains nearly stationary; and a process, of which the rudiment is perceptible in the young animal, co-extending in downward growth with the changed position of the articulation, becomes interposed between the condyle and the *meatus*, and affords a support against backward dislocation. In the *cranium* of the negro, a similar process may be traced in a rudimental condition, anterior to the *fissura Glaseri*, as in the young *Chimpanzee*.

The *zygoma* is proportionally weaker than in the *Orang*. But the most remarkable characteristic of the skull of the *Chimpanzee*, both in the young and adult states, is the large projecting supra-orbital ridges, which being continued into each other across the *glabella*, form a sort of barrier between the head and face. The cranial sutures, which are obliterated in the adult *Orang*, *syndactylous Ape*, and more or less in the *Baboons*, are for the most part persistent in the *Chimpanzee*, as in the human subject. Enough of the squamous suture remains to show that the anterior angle of the temporal bone joins the frontal, and separates the parietal and sphenoid bones, as in the young. The condyloid processes are proportionately smaller than in the human subject, and their articular sur-

face is directed more outwardly. The *foramen magnum* is thrown back to about the middle of the posterior third of the base of the skull, and its plane is inclined from before upwards at an angle of 5° . There are no posterior condyloid *foramina*. The styloid process is represented by a very small tuberosity. A considerable space intervenes between the *foramen magnum* and the bony palate, which itself equally exceeds the corresponding portion of the human skull. The zygomatic arches are opposite to the middle third of the *cranium* as seen from below, in which position also the contraction of the skull between the *zygomata* offers a marked distinction from that of *Man*.

In the front view of the *cranium*, the threatening supraciliary ridges almost hide the cephalic cavity from view; and the latter, instead of forming a broad back-ground to the face, as in the young *Chimpanzee*, and still more in *Man*, is surpassed in breadth by the lateral boundaries of the orbits and the zygomatic arches. The orbits are seated higher than in the *Orang*, and are larger in proportion; but their plane is more perpendicular, and they are wider apart. In neither the *Chimpanzee* nor the *Orang* is there a supraorbital *foramen*, but its place is marked by a slight groove. The lachrymal bones are entirely confined to the orbit. A character by which the *Chimpanzee* approximates more closely than the *Orang* to the human subject is found in the nasal bone, which projects in a slightly arched form beyond the interorbital plane, and exhibits at its lower margin a trace of its original separation into two lateral portions: it is ankylosed with the *os frontis* and the suture obliterated. The malar bones are largely developed, and two or three small *foramina* are observable in the process on the outside of the orbit. The contour of the upper jaw from the nasal aperture to the incisor teeth is almost straight, while in the *Orang* it is rendered concave by the greater development of the alveolar processes of the intermaxillary bones. The obliteration of the sutures between these bones and the upper maxillary takes place at a much earlier period in the *Chimpanzee* than in the *Orang*; although in the young animal, when the first dentition is complete, traces of the original separation are still visible. The situation of the *foramina incisiva* is always indicative of the original extent of these bones, and in no *Mammal* do they approximate so closely to the incisive teeth as in *Man*. The infra-orbital canal opens upon the face by a single *foramen*: Mr. Owen has observed a second in one young specimen, but never more. In the *Orang* there are usually three or more, as in many of the inferior *Simiæ*. The lower jaw, like the upper, is characterized by its strength and relative size. Its *symphysis* recedes, but the depth at this part is much less than in the *Orang*. The *alveoli* advance more nearly to the level of the condyle, and consequently approximate proportionally to the structure of the brute; the mental *foramen* is single.

Mr. Owen next proceeds to notice the dental *formula* and the characters of the teeth; and observes particularly on the modifications in their arrangement and relative position consequent on the preponderating development of the *cuspidatus*. He also points out

the more important deviations which occur in the disposition and development of the different bones of the face in connexion with the same influential condition of the organs of mastication; and then continues his description of the skeleton of the *Chimpanzee* by passing to that of the trunk.

The number of the *vertebræ* is the same as in *Man*; but an additional rib subtracts one from the lumbar to be added to the dorsal series. The spines of the cervical *vertebræ* are simple and elongated; that of the third being the shortest, with the exception of the *atlas*, which, as usual, is without spine. The bodies of the lumbar *vertebræ* are proportionally smaller than in *Man*; a difference easily accounted for by the necessity of affording a basis for the support of the latter in the erect position; and the same recession from the *Bimanous* type is manifested in the narrow and elongated form of the *sacrum*. In the adult animal, but less conspicuously in the young, the iliac bones rise on either side of the last lumbar *vertebra*, and are partially attached to it. The coccygeal are ankylosed together, but not with the *sacrum*; three are distinctly visible in the young. Of the sacral *vertebræ* only the two superior are united to the iliac bones. The *pelvis* differs from that of *Man* in all those particulars which characterize the *Quadrumanus*, and which relate to the imperfection of their means of maintaining the erect position. The iliac bones are long, flat, and narrow, the anterior surface stretching outwards almost parallel with the plane of the *sacrum*; the aperture is elongated and narrow; and the tuberosities of the *ischia* are broad, thick, and curved outwards. There is, however, a provision for a more extended attachment of the *glutæi* muscles in a greater breadth of the *ilia* between the superior spinous processes than is observed in the inferior *Simiæ*; and we may thence infer that the semi-erect position is more easily maintained in the *Chimpanzee*.

In the relative size and strength of the lower extremities, the *Chimpanzee* claims a much closer relationship to the human subject than the *Orang*. Both animals exhibit in this respect permanent conditions that are transitory in *Man*: in the *Orang* the legs have the curtailed proportions which they present in the human *fœtus* of four months' gestation; in the *Chimpanzee* they retain the relative size of the yearling infant. The *femur*, not more bent anteriorly than in *Man*, has its neck of equal comparative length, but standing out more obliquely from the shaft. In the adult, as well as in the young *Chimpanzee*, the depression in the head of the *femur* for the attachment of the *ligamentum teres*, which is wanting in the *Orang* and the *Pongo*, is found to exist, notwithstanding the remark of Meckel to the contrary. The *tibia* and *fibula* are proportionally thicker and stronger than in *Man*; and the *patella* proportionally smaller. In their relative size and position the tarsal bones more closely resemble the corresponding bones of the human subject than those of any other *Quadrumanous* animal. The outer articulating surface of the *astragalus* is, however, of larger size, and a corresponding disproportion exists between the external and internal *malleolus*, the latter, from

its smaller size, presenting less resistance to the rotation of the *tarsus* inwards. The *os calcis* projects further backwards than in the lower *Simiæ*, but is more compressed laterally, and of much smaller proportional size than in *Man*. The *os naviculare* projects further downwards, and the internal cuneiform bone has a corresponding inclination below the level of the tarsal bones. But whilst the *Chimpanzee* exhibits the *Quadrumanous* characters in these particulars, and especially in the curtailed proportion and detached opposable condition of the *hallux*, it approaches more nearly to *Man* in the length and strength of that member. The whole foot is much longer than in the human subject; and the entire organization of the inferior members evidently bespeaks a creature destined to reside in forests, the modifications of the bony structure which add to the facility of climbing and grasping, rendering the entire frame more dependent on the upper extremities for the means of progression and support.

The size and expansion of the *thorax* is a marked character in the *Chimpanzee*: it has thirteen ribs on each side, and the last two pairs are proportionally longer than in *Man*, the end of the last not being pointed, but widened for the attachment of a cartilage. The *sternum* is flattened, but not so broad as in the *Orang*. The *harmonia* between its body and the *manubrium*, and those between the four single pieces of which the body is itself composed, remain visible in the adult skeleton. The clavicle is long and strong, and is not straight, as in the *Orang*, but sigmoidally curved, though in a less degree than in *Man*; while the *scapula*, on the other hand, recedes further from the human type than in the *Orang*. The *humerus* very closely resembles that of the human subject, but is proportionally longer and stronger, and has its twist more strongly marked and lower down on the bone. As the segments of the limbs recede further from the trunk they become subject to greater and more varied modifications. Thus the disproportionate length of the *humerus* is succeeded by a still greater elongation of the fore-arm, the bones of which are also more curved from each other than in *Man*, and the inter-osseous space consequently enlarged. The bones of the *carpus* are the same in number as in the human subject; but the *trapezium* and *trapezoides* are proportionally smaller, while the *os pisiforme* nearly equals the *os magnum*. The thumb does not quite equal in length the metacarpal bone of the first finger, and is as slender and weak as it is short. Some little disproportion also exists between the relative lengths of the fingers; but taken together they are relatively stronger and more elongated than in *Man*.

After completing his detailed examination of the skeleton, Mr. Owen reverts to the changes which it undergoes in its progress to maturity, especially as regards the proportions of the head and face; and states that he has derived full confirmation of the identity of species in the young and adult *crania*, from a comparison of the crowns of the permanent teeth lodged within the jaws of the young *Chimpanzee* with those which had replaced the deciduous teeth in the older specimen. The resemblance in point of size and figure was exact, and left no room for doubt as to the point in question. The

succession takes place precisely as in the human subject, but the permanent teeth, and especially the incisors and canines, are proportionally longer. The particulars of their form and arrangement are given at length.

This portion of the paper was accompanied by an extensive series of admeasurements of the different parts of the skeleton in the adult and young *Chimpanzee*, compared with those of the young and adult *Orang*; and was further illustrated by numerous drawings, and by the exhibition of Mr. Walker's skeleton of the *Chimpanzee*, lent by him for the purpose.

The second portion of the paper commences with the remark that the opportunity which the rare and interesting skeleton of the adult *Chimpanzee*, in the possession of Mr. Walker, had afforded of tracing the changes of structure occurring in that *Ape*, in its progress to the adult condition, had induced the author to review the question relative to the identity of the young *Simia Satyrus* with the great *Poŋgo* of Borneo, formerly brought by him under the notice of the Society ('Proceedings of Committee of Science and Correspondence,' Part I. p. 9); and to consider the osteological structure of the latter, or adult *Orang*, with reference to that of its less powerful and more anthropoid congener, the *Chimpanzee*. This comparison would show that the number and value of the points of resemblance, or of approximation, to the *Bimanous* structure are in favour of the *Chimpanzee*; although in this, as in most other instances, there are some particulars of its organization indicative of a more marked relation with the inferior forms of the group than with those which rank immediately below it.

In common with the skull of the *Mandrill* that of the adult *Orang* is remarkable for its flattened *occiput*, formidable canine teeth, huge jaws, widely expanded zygomatic arches, and strongly developed cranial ridges; but it exhibits a marked distinction in its less brutalized expression, resulting from the more perpendicular slope of the face, the absence of the projecting supraciliary ridges, the greater expansion of the cerebral cavity, and the non-development of the supra-maxillary ridges. Its *cranium* is less flattened at the *vertex* than that of the *Chimpanzee*; and but little exceeds in capacity that of the young at the period of acquiring its first permanent *molars*, the increase in size being chiefly dependent on the thickening of the walls of the skull. The ridges which circumscribe on the frontal bone the origin of the temporal muscles inclose a triangular space, the smoothness of which strongly contrasts with the irregular surface of the remainder of the *cranium*; and the interparietal crest rises, as in the *Hyæna* and other *Carnivora*, high above the general level. The situation of these ridges, with reference to the sutures, is only determinable by comparing the faint commencement of their growth in the young animal, very few traces of the sutures remaining in the adult skull. That between the *ala* of the sphenoid bone and the descending angle of the parietal, by means of which the frontal and temporal are kept separate, and which offers one of the few osteological differences in which the *Orang* has a closer approxima-

tion to the human structure than the *Chimpanzee*, is among those which continue to be marked even in the adult. The occipital *foramen* approaches in figure, position, and aspect, nearer to that of the lower *Mammalia*; the occipital condyles are more closely approximated anteriorly; the anterior condyloid *foramina* are double on each side; and the carotid *foramen* is situated more posteriorly, and is relatively smaller, than in the *Chimpanzee*. The petrous portion of the temporal bone is smaller, while the glenoid cavity forms a much larger proportion of the base of the skull. This cavity, if such it may be called, presents a quadrate, almost flattened surface, slightly concave in the transverse, and slightly convex in the antero-posterior direction, affording an interesting correspondence with the structure of the molar teeth, and indicative of the vegetable diet of the animal. The styloid and styiform processes are wanting, as in the *Chimpanzee*; the mastoid is represented by a protuberant ridge, and its cellular structure is visible in consequence of the thinness of the external table. The ant-auditory process is more developed than in the *Chimpanzee*, and the margins of the auditory *foramina* are smoother.

On the bony palate, the relative positions of the *foramina incisiva* correspond with the increased development of the laniary teeth, and consequently deviate in a proportionate degree from their positions in the *Chimpanzee* and in the human subject. Two or three *foramina* remain on either side and indicate the original separation of the incisive bones; and similar indications of the original *harmonice* between the incisive and maxillary bones are seen on the anterior part of the skull. In the *Chimpanzee* the obliteration of these sutures takes place some time before the temporary teeth are shed; in the *Orang* they remain until the permanent teeth are almost fully developed: in the human subject the intermaxillary bones can be traced as distinct elements only in the early periods of foetal existence, when they were first detected by the poet Goethe. In the *Orang* no part of the *os nasi* projects, as in the *Chimpanzee*, beyond the plane of the nasal processes of the superior maxillary bones; and there are no traces of its original separation at the mesial line, while in the *Chimpanzee* such traces are usually found, and Dr. Traill observed two distinct *ossa nasi* in the young of that species dissected by him. The lachrymal bones are proportionally larger than in *Man*; but, as in the *Chimpanzee* and the higher *Quadrumana*, they are confined to the orbit, the whole outer boundary of which has a more anterior aspect than in the *Chimpanzee*, and is relatively broader and stronger, but with the oblique posterior edge less developed. The interorbital space is relatively narrower, the disproportion increasing with the development of the superior maxillary bones, and evidencing a still further departure from the human form. There are three infra-orbital *foramina* instead of one; the upper maxillary bones are much more largely developed in consequence of the great size of the laniary teeth; and the incisor teeth project more obliquely forwards than in the *Chimpanzee*.

“In all the peculiarities,” Mr. Owen observes, “of the *Orang*’s

skull, which are independent of the changes consequent on the second dentition, we find an exact correspondence between the *Simia Satyrus*, or young animal, and the *Pongo*, or adult. The *crania* equally exhibit the absence of the projecting supraciliary ridges; the presence of the double anterior condyloid *foramina*; the numerous infra-orbital *foramina*, and those in the malar bone; the same disposition of the cranial sutures; the same form of the *os nasi*; and contraction of the inter-orbital space. The character of the lower jaw by which it differs from the *Chimpanzee*, viz. the greater height and breadth of the *rami*, and the greater depth of the *symphysis*, are equally manifested in the young as in the old *Simia Satyrus*. In following out the same observations with regard to the germs of the permanent teeth in the young *Orang*, the same satisfactory results are obtained in reference to their identity with those which are fully developed in the old animals, as were previously detailed in the account of the *Chimpanzee*."

Mr. Owen then proceeds to describe in detail the appearances presented by the germs of the permanent teeth, and to compare them with the adult; and concludes this part of his subject by some observations on the apparent confusion in which these germs lie hidden within the jaw, and on the admirable and orderly arrangement by which the most perfect regularity is established in their ultimate position. Applying these observations to the replacement of the teeth in man, he inquires, how it happens that when the chances of disarrangement are so much fewer, the mal-position of the permanent teeth is of so frequent occurrence, and finds the solution of this problem in a mischievous interference with the agents to which the necessary changes have been entrusted. "The means by which the growth of the permanent teeth are kept in due restraint are too often prematurely removed by anticipating the natural period of the extraction of the temporary teeth; the act of extraction accelerates the growth of the concealed teeth, both by the removal of the check which nature has imposed upon it, and by the irritation induced in the surrounding parts; and their full development being consequently acquired before the jaws have been sufficiently enlarged, they occupy more or less of the relative position which they had when half formed within their bony cavities."

The conditions of the superior development of the spinous processes of the cervical *vertebræ* in the *Orang*, are obviously the backward position of the occipital *foramen*, the disproportionate development of the face, and the general anterior inclination of the *vertebræ* themselves. Those of the sixth and seventh *vertebræ* have a slight inclination towards the head, indicating that the centre of motion in this region is nearer the head than in *Man*. The whole of the cervical region is proportionally shorter, and consequently better adapted to support the head; and the entire vertebral column has one general curve dorsad from the *atlas* to the commencement of the *sacrum*, where there is a slight curve in the contrary direction. As in *Man*, the number of the dorsal or costal *vertebræ* is twelve, and this constitutes one of the more important differences between the *Orang*

and the *Chimpanzee*. That of the lumbar *vertebræ* is four, as in the *Chimpanzee*, in the skeleton of the *Pongo* preserved in the Museum of Comparative Anatomy at the Garden of Plants, and in the trunk of the skeleton of the adult *Orang* in the collection of the Society; in which latter, as the bones remain connected by their natural ligaments, there is no room for supposing a *vertebra* to have been accidentally lost. The additional lumbar *vertebra* in the skeleton of the *Pongo* in the College of Surgeons, on which some stress has been laid, as indicative of its specific difference from the young *Orang*, which has uniformly presented but four, indicates its abnormal character by its form and situation. The human subject occasionally presents a similar *lusus* in the addition of a sixth lumbar *vertebra*. The spines of these *vertebræ* are much shorter than in the *Chimpanzee*: as in the latter, the *sacrum* is longer, narrower and straighter than that of *Man*. Five sacral *vertebræ* are perforated for the passage of the spinal cord; three are imperforated, and are consequently coccygeal: the latter are ankylosed together, but not with the *sacrum*, in the adult.

The *ilia* are as much expanded as in the *Chimpanzee*, but flatter; and the *ischia* are less extended outwards, corresponding with the smaller development of the lower extremities. Both the *ischia* and *ossa pubis* resemble those of the *Chimpanzee*, in their more elongated form; and the whole *pelvis* equally deviates from the *Bimanous* type in its position with regard to the trunk. The form of its superior aperture is an almost perfect oval, the antero-posterior diameter of which is to the transverse as three to two; and the axis of the brim forms, with that of the outlet, a much more open angle than in the human subject. The chest is amply developed, equalling in size that of the human subject, except in being somewhat narrower from side to side. The ribs are narrower and less flattened, but their curvature is nearly the same as in *Man*; the twelfth is much longer, and has a long cartilage at its free extremity. The *sternum* is short, but broader than in the *Chimpanzee*: it is composed, below the *manubrium*, of a double series of small bones, seven or eight in number. This composition, always seen in the young *Orang*, is sufficiently obvious in the adult *Pongo* in the Museum of the College of Surgeons, but much less so in that of the Garden of Plants at Paris. In the young *Chimpanzee* the *sternum* is composed of a single series of bones; while in the human subject, although at an early period of ossification, a single series only of ossific centres appears: at a later stage the lower part of the *sternum* is frequently seen to be composed of a double series.

The clavicles are almost straight; and the *scapula* also differs from that of the *Chimpanzee* in its greater breadth, and from that of *Man* in the inclination of its spine towards the superior *costa*, in the *acromion* being narrow and claviform, and in the absence of the flattened and over-hanging margin of the spine. Other differences exist in the comparative dimensions and features of the supra- and sub-spinal *fossæ*, in the inclination of the coracoid process, and in the direction of the glenoid cavity. But the principal feature in the

organization of the *Orang*, and that in which it differs most from the *Chimpanzee*, consists in the relative length of the upper and lower extremities, the arms in the former reaching to the heel. The articular surface of the head of the *humerus* forms a complete hemisphere; and in some specimens that bone is perforated between the condyles. The principal peculiarities in the fore-arm consist in the large space between the *radius* and *ulna*, occasioned by the outward curve of the former, and in the absence of the acute margin on its ulnar aspect. The proportion borne by the *radius* to the *ulna* is in *Man* as 11 to 12; in the *Orang* as 36 to 37. The bones of the hand offer the same elongated form, with the exception of those of the thumb, which does not reach to the end of the metacarpal bone of the fore-finger. Those of the *carpus* have their ossification completed at a later period than in *Man*, and allow a freer motion upon each other: the *os pisiforme* is divided into two. Of the fingers, the proximal *phalanges* are more curved than in *Man*, and the distal more pointed, not expanding to afford support for an extended surface of delicate touch.

As the upper extremity of the *Orang* exceeds in length that of the *Chimpanzee*, so the lower differs as much in the contrary respect; preserving throughout life much less than the foetal proportions of the human subject. The *femur* has a straight shaft, no depression on the head, a shorter neck forming a more obtuse angle with the shaft, and no *linea aspera* posteriorly. The inner condyle not being produced beyond the outer, the axis of the *femur* is in the same line with that of the *tibia*, as in the *Chimpanzee*. The inward curve of the *tibia* occasions a much larger space between it and the *fibula* than in *Man* or in the *Chimpanzee*. The *patella* is smaller in proportion than in *Man*, of an oval shape, and with a single articulating surface. The bones of the *tarsus* are numerically the same with those of the *Chimpanzee*, and have the same general form, but admit of freer motion on each other. A greater degree of obliquity in the articulating surface of the *astragalus* causes the whole foot to be turned more inwards; and the *os calcis* has still less projection backwards than the *Chimpanzee*. The internal cuneiform bone recedes most from the human type in having a greater development towards the tibial aspect, and in having the surface of articulation for the *hallux* below the range of the other metatarsal bones, all of which are much longer and more bent and have greater interspaces than the human. That of the *hallux* extends very little beyond the middle of that of the second toe, and stands off from it at an acute angle. The peculiarity of the structure of the *hallux* first noticed by Camper, in seven out of eight *Orangs* observed by him, viz. its possessing no ungueal *phalanx* and consequently no nail, loses much of its importance as a specific character from the fact that the individual dissected at the Society's Museum a few years since had very perfect, but small, black nails, and two *phalanges*, and that the same number of *phalanges* exist in the natural skeleton of Lord Amherst's *Orang* in the Museum of the College of Surgeons. The *phalanges* of the other toes are remarkably elongated, and those of the first

series are curved. The middle toe is longer than the rest, while in the *Chimpanzee* it barely surpasses the second. The concavity of the great toe is turned more towards the other toes than in the *Chimpanzee*, (in which that toe is also longer, having always two *phalanges* in addition to the metatarsal bone,) is set more forwards on the internal cuneiform bone, and has its concavity directed more towards the sole of the foot. The resemblance to the human foot is consequently greater in the *Chimpanzee* than in the *Orang*.

In conclusion Mr. Owen adverted to a fine specimen of the skull of a *Pongo* in the possession of Mr. Cross, of the Surrey Zoological Gardens, which presents the following differences when compared with the skull of the *Pongo* in the Museum of the College of Surgeons.

It is shorter in the antero-posterior diameter, and rises higher at the *vertex*. The supraorbital ridges are more prominent; the plane of the orbits is more vertical, and their lateral exceeds their perpendicular diameter. The profile line of the skull is concave between the *glabella* and incisor teeth, while, in the specimen in the Museum of the College, it is almost a straight line between the same parts. The *symphysis* of the jaw from the interspace of the mesial incisors to the origin of the *genio-hyoidei* muscles, measures $2\frac{1}{2}$ inches in Mr. Cross's specimen, but equals $3\frac{1}{4}$ inches in the *Pongo* in the College Museum. There is also a remarkable difference in the position of the zygomatic suture. In the *Pongo* of the College Museum it commences at the distance of a quarter of an inch from the orbital process of the malar bone, and extends obliquely backwards to within $1\frac{1}{4}$ inch of the origin of the zygomatic process of the temporal bone. In Mr. Cross's specimen the same suture commences 8 lines from the orbital process of the malar bone, and extends to within 10 lines of the origin of the temporal zygomatic process, so that it is much nearer the middle of the *zygoma*.

With these differences, however, there exist the same form and proportions of the teeth, and the same peculiarities of the *foramina* and sutures which distinguish the *Orang* from the *Chimpanzee*. So that although the difference in the shape and general contour of the two skulls, is greater than is usually observable in those of other wild animals, yet Mr. Owen does not consider them sufficient to afford grounds for a distinction of species. He thinks it, however, probable that they may be indicative of varieties of the *Orang* inhabiting distinct localities, and remarks that it would be interesting with that view to compare the *crania* of ascertained specimens from Borneo and Sumatra, to which Islands this very remarkable species appears to be confined.

March 24, 1835.

William Yarrell, Esq., in the Chair.

A Letter was read, addressed to the Secretary by W. Willshire, Esq., Corr. Memb. Z. S., dated Mogadore, February 19, 1835, and referring to the skin of an *Aoudad*, *Ovis Tragelaphus*, Geoff., presented by the writer to the Society, and also adverting to his endeavours to obtain the animal which, from the description of it given by the Arabs of the Desert, Mr. Willshire conceives must be the *Antilope Leucoryx* described by Pennant.

The exhibition was resumed of the new species of *Shells* contained in Mr. Cuming's collection. Those brought on the present evening under the notice of the Society, completed the genera *Venus* and *Cytherea*, which had been commenced at the Meeting on February 24, (page 21). The *Shells* now exhibited were accompanied by characters by Mr. Broderip and Mr. G. B. Sowerby.

Genus VENUS.

VENUS TRICOLOR. *Ven. testá ovato-ellipticá, crassiusculá, radiatim costellatá, costellis decussatis; maculis interruptis fuscis, irregularibus, radiatim dispositis; margine dorsali medio subangulato; impressione cordiformi anticá parvá; intùs violacéa, margine ventrali denticulato: long. 1·7, lat. 0·75, alt. 1·3 poll.*

Hab. ad oras Americæ Centralis. (Puerto Portrero.)

Found in sandy mud at from eleven to thirteen fathoms.—G. B. S.

VENUS HISTRIONICA. *Ven. testá obovatá, pallidè fulvá, radiatim costellatá, costellis plerumque duplicatis, concinnè decussatis, asperis; maculis interruptis fuscis irregularibus radiatim pictá; margine dorsali rectiusculo, posticè subangulato; impressione cordiformi anticá magná; intùs albicante, margine ventrali denticulato: long. 1·8, lat. 1·, alt. 1·4 poll.*

Hab. apud Real Llejós, Americæ Centralis, et ad Sanctam Elenam. Found in muddy sand at low water.—G. B. S.

VENUS FUSCO-LINEATA. *Ven. testá obovatá, albicante, radiatim costellatá, costellis anticè subdecussatis; lineis undatis, subobliquis, radiisque duobus fuscis nonnunquam pictá; margine dorsali rectiusculo, posticè subangulato; latere antico brevi, impressione cordiformi anticá parvá; intùs purpurascente, margine ventrali denticulato: long. 1·5, lat. 0·8, alt. 1·2 poll.*

Hab. ad oras Americæ Centralis. (Guacomayo.)

Found in sandy mud at a depth of thirteen fathoms.—G. B. S.

VENUS CHILENSIS. *Ven. testá obovatá, pallidá, radiatim costellatá, costellis (medianis præcipuè) planulatis, (anticis posticisque præcipuè) decussatis; maculis, lituris, strigilisque pallidè fuscis ornatá; margine dorsali rectiusculo, subdeclivi, posticè subangulato; latere antico breviorè, impressione cordiformi parvá; intùs albicante, margine ventrali denticulato: long. 2·8, lat. 1·5, alt. 2·4 poll.*

Hab. ad oras Chilenses. (Valparaiso Bay.)

Found in coarse sand at low water.—G. B. S.

VENUS LENTICULARIS. *Ven. testá lenticulari-subtrapeziformi, crassá, opacá, pallidá, lævi, lineis concentricis anticè posticèque distinctis, medio obsoletis, prope umbonem elevatiusculis; margine dorsali subrotundato, posticè subangulato; impressione cordiformi elongatá, parvá, impressá; intùs albidá, margine ventrali lævi: long. 3·1, lat. 1·5, alt. 2·7 poll.*

Hab. ad oras Chilenses. (Valparaiso Bay.)

Found in coarse sand at low water.—G. B. S.

VENUS ASPERRIMA. *Ven. testá obovatá, crassiusculá, opacá, albicante, radiatim costellatá, costellis numerosis, decussatis, asperis; latere antico breviorè; margine postico dorsali declivi, rectiusculo; impressione cordiformi anticá elongatá: long 2', lat. 1', alt. 1·65 poll.*

Hab. ad Insulam Lobos dictam.

Found in fine sand at low water.—G. B. S.

VENUS COSTELLATA. *Ven. testá obovatá, turgidá, fuscescente, costellis lamellosis, reflexis, posticè magis eminentibus, concentricis ornatá; lineis radiantibus impressis albis decussatá; impressione cordiformi anticá distinctá, marginibus medianis elevatiusculis; intùs albá, margine ventrali crenulato: long. 2·6, lat. 1·5, alt. 2·3 poll.*

Hab. ad Valparaiso, Chilensium, et ad Callao, Peruvix.

OBS. Testa nonnunquam unicolor, nonnunquam prope apices cinnè punctulata.

Found in coarse sand at a depth of from six to fifteen fathoms.—G. B. S.

VENUS OPACA. *Ven. testá oblongá, subquadratá, subturgidá, lævi, opacá, albidá, pallidissimè purpurascente; latere antico breviorè, rotundato, concentricè ruguloso, postico subrotundato, suprà infràque subangulato; margine interno integerrimo; ligamento permagno: long. 3·4, lat. 1·6, alt. 2·5 poll.*

Hab. ad oras Chilenses. (Conception and Maule.)

Found in sandy mud at low water.—G. B. S.

VENUS VARIABILIS. *Ven. testá oblongo-subtrigoná, tenuiusculá, lævi, politá, albá, strigilis lineisve angularibus fuscis variè pictá; intùs albá, margine integerrimo: long. 1·3, lat. 0·7, alt. 1·1 poll.*

Hab. in Australiâ. (Swan River.)—G. B. S.

VENUS DISCORS. *Ven. testá obovali, crassiusculá, radiatim confertim striatá, anticè rugis decussatá, albá fusco-nigricante instrata, coloribus valvæ alteræ diversimodo ordinatis; lined dorsali elevatiusculá; intùs albá, posticè violaceo tinctá, margine ventrali crenulato: long. 1·9, lat. 1·1, alt. 1·6 poll.*

Hab. ad Sanctam Elenam, Americæ Meridionalis, et ad Guacomayo, Americæ Centralis.

- The disparity in the arrangement of the colouring in the two valves is a remarkable peculiarity in this species.

Found in sandy mud at from six to nine fathoms.—G. B. S.

VENUS CYPRIA. *Ven. testá oblongá, subtrigond, concentricè lamellosá, lamellis crassis, obtusis, posticè tenuioribus, subappressis, albá fusco radiatá; lineá dorsali rectiusculá, declivi; areá posticá latá, fuscátá; impressione cordiformi anticá conspicuá, fuscá; margine ventrali intùs integerrimo: long. 0·75, lat. 0·4, alt. 0·6 poll.*

Hab. ad Insulam Platæ, Columbiæ Occidentalis.

Found among coral sand in seventeen fathoms.

This appears to be a near relation to the Linnean *Venus Paphia*.—G. B. S.

VENUS CRENIFERA. *Ven. testá ellipticá, asperá, albicante fusco maculatá et variè pictá, lamellis concentricis, brevibus, confertis, striis radiantibus confertissimis decussatis; margine ventrali crenulato; dente cardinali antico magno, elongato: long. 1·4, lat. 0·8, alt. 1·2 poll.*

Hab. ad Sanctam Elenam.

Variat testá subfuscá, unicolore, striis radiantibus nonnullis elevatis costiformibus.

Hab. ad Paytam, Peruviæ.

Found in the sand at low water.—G. B. S.

VENUS LEUCODON. *Ven. testá ellipticá, cinerascete, crassiusculá, concentricè costellatá, costellis levibus, reflexis, radiatim striatá, striis numerosis, confertis: areá dorsali posticá lunuláque fuscis; margine interno ventrali denticulato, denticulis albis, interstitiis nigricantibus: long. 1·35, lat. 0·7, alt. 1·15 poll.*

Hab. in Sinu Californiensi. (Guaymas.)

Found in coarse sand at low water.—G. B. S.

VENUS CALIFORNIENSIS. *Ven. testá globosá, crassá, albente, concentricè multi-lamellosá, lamellis crassiusculis lateraliter subcrenulatis, costis creberrimis cancellatá; areá posticá infossá, grandí; lunulá magná, tumente; intùs albá, impressionibus muscularibus posticis violaceo fucatis; limbo interno crenato: long. 2·9, lat. 1·7, alt. 2·7 poll.*

Hab. in sinu Californiæ. (Guaymas.)

From about the middle of the valve the concentric lamellæ begin to approach nearer and nearer, till, in old specimens, they hide the radiated ribs, and at length, at the ventral border which is covered with an *epidermis*, they become mere smooth lineations. The internal violaceous spots are not always on the posterior muscular impressions, but sometimes only in their immediate neighbourhood.

Found in sandy mud at low water.—W. J. B.

VENUS COMPTA. *Ven. testá subtrigond, planiusculá, crassá, lamellis concentricis lateraliter crenulatis, crassiusculis, radiatim creberrimè costellatá, albente lineis flavo-castaneis inscriptá; areá posticá incisá, spadiceo strigatá; lunulá pallidiore; intùs albá, limbo crenato: long. 2·3, lat. 1·2, alt. 2· poll.*

Hab. ad Peruviam. (Bay of Sechura.)

A fine species. It was dredged up in coarse sand and mud at a depth of seven fathoms.—W. J. B.

VENUS ORNATISSIMA. *Ven. testâ subglobulosâ, radiatim creberrimè costatâ, lamellis concentricis valdè elevatis, crispo-plicatis, spadiceo-albente; intùs albâ, limbo interno crenulato: long. 1·6, lat. (lamellis inclusis) 1·1, alt. 1·4 poll.*

Hab. ad Panamam.

This unique and highly ornamented shell was dredged up from sandy mud at a depth of ten fathoms.

The regular radiating ribs, each of which, as it advances from about the middle of the valve to the ventral border, has a depression in the middle, and the crisply plaited well-developed concentric frill-like *lamellæ*, render it the most curious in point of workmanship of any of the species.—W. J. B.

VENUS MACTRACEA. *Ven. testâ subglobulosâ, lineis concentricis, elevatis, acutis, subdistantibus ornatâ, albâ; limbo interno lævi: long. 1·5, lat. 0·9, alt. 1·3 poll.*

Hab. ad Valparaiso.

This unique shell was dredged from sandy mud at a depth of twenty fathoms. I have given it the trivial name of *Mactracea* because it reminds the spectator of some of the lamellated species of that genus.—W. J. B.

VENUS PULICARIA. *Ven. testâ subtrigondâ, lineis concentricis, elevatis, creberrimis, subtilissimè plicatis ornatâ, albâ spadiceo inspersâ; areâ dorsali vel posticâ nigro-spadiceo strigatâ, lunulâ fuscâ; intùs purpurascente, limbum versus crenulatum albente: long. 1·8, lat. 1, alt. 1·4 poll.*

Hab. ad Columbian Occidentalem. (Chiriqui and Tumaco.)

The scattered spots are often arranged in angular figures, and being more intense in some parts than others, the valves present a somewhat radiated appearance.

Dredged up from sandy mud at a depth of three fathoms.—W. J. B.

VENUS OBSCURA. *Ven. testâ subglobosâ, lineis concentricis crenulatis horridâ, albente obscurè maculatâ; intùs albâ, limbo crenulato: long. 0·7, lat. 0·5, lat. 0·7 poll.*

Hab. in Oceano Pacifico. (Lord Hood's Island.)

Found in coral sand at low water.—W. J. B.

Genus CYTHEREA.

CYTHEREA LUBRICA. *Cyth. testâ subrotundato-cordatâ, lubricâ, subviolaceâ, intùs albâ, anticè et supernè subconcentricè lineatâ, lineis elevatis; limbo interno lævi: long. 1·7, lat. 0·8, alt. 1·4 poll.*

Hab. in Americâ Centrali. (Puerto Portrero.)

This species, which is of moderate size, was dredged up by Mr. Cuming from coral sand at a depth of thirteen fathoms. The concentric somewhat elevated lines are comparatively small and close at the upper part of the valve near the *umbones*, and gradually widen out till they become distant and strongly marked at the anterior part of the valves, the middle and posterior parts of which are without any lineations. The whole shell has a shining slippery appearance.—W. J. B.

CYTHEREA ALTERNATA. *Cyth. testâ subrotundato-trigondâ, lineis concentricis elevatis acutis frequentibus ornatâ, albâ spadiceo radiatâ; areâ dorsali vel posticâ lunulâque spadiceo-violaceis; intûs albâ, umbones versus spadiceo-violaceo obscure nebulosâ; limbo interno lævi: long. 1.4, lat. 0.8, alt. 1.2 poll.*

Hab. ad Columbianam Occidentalem. (Monte Christi.)

This species was dredged up in sandy mud at a depth of seven fathoms. The size of the specimen is rather less than that of the preceding.—W. J. B.

CYTHEREA TORTUOSA. *Cyth. testâ obliquè cordatâ, posticè sublobatâ, lineis frequentibus subconcentricis obtusis posticè irregularibus, albâ umbones versus subspadiceo-albâ: long. 1.6, lat. 0.85, alt. 1.2 poll.*

Hab. ad Panamam, et ad Xipixapi.

Var. testâ roseo rufoque pulcherrimè subradiatim pictâ.

Lamarck refers to no figure for his *Cyth. albina*, but only says that it has some likeness to the *Pectunculus* figured in Lister's Conchology, t. 263, f. 99. Part of Lamarck's description would apply to the shell now before me, but the term "striis exiguis" is inapplicable to the blunt and coarse lines with which the shell under description is marked concentrically, and as there is no notice taken of the posterior sublobation, I must conclude that Lamarck's *Cyth. albina* is not my *Cyth. tortuosa*.

Dredged up from sandy mud at a depth of six fathoms.—W. J. B.

CYTHEREA AFFINIS. *Cyth. testâ ovato-oblongâ, planiusculâ, lineis distantibus elevatis subacutis concentricis, albente violaceo radiatâ, posticè vix sublobata; areâ posticâ violacèâ, lunulâ pallidâ; intûs albâ, limbo interno lævi; epidermide fuscâ tenui: long. 1.6, lat. 0.7, alt. 1.1 poll.*

Hab. ad Colombiam Occidentalem. (Xipixapi.)

This species, which approaches the last, differs from it in the following particulars. The shell is much flatter, the elevated, regular, concentric, somewhat sharp lines are much more distant, (especially as they recede from the *umbones*,) than the irregular, close-set, blunted lineations, almost amounting to rugosities, of *Cyth. tortuosa*. There is an approach to lobation towards the dorsal or posterior border; but it is not nearly so strongly marked as in *Cyth. tortuosa*. Still it may be a variety of *Cyth. tortuosa*.

Dredged up from sandy mud at a depth of ten fathoms.—W. J. B.

CYTHEREA DIONE, var.

Though varieties of this species have, for a long time, been known in this country, I am not aware that they have ever been recorded. The descriptions of Linnæus and Lamarck and the figures quoted by them, apply to the variety found in the West Indies, which is comparatively small with the *lamellæ* high and sharp and the spines close-set and short, the prevailing tinge of the shell being of a somewhat vinous or purplish flesh-colour. A dark-coloured long-spined variety of this and a white one, also with long spines, the spines in both being very close-set, were dredged up from sandy mud at a depth of nine fathoms at Salango in West Colombia.

Var. β . *Pallida, areá dorsali vel posteriori lunuláque violaceis; lineis concentricis anticè lamellatis, alibi rotundatis irregularibus, rugarum formam referentibus; spinis distantibus longissimis.*

This variety, of which Mr. Cuming possesses a specimen with the lower spines an inch and a half long, grows to a large size. It was dredged up at Tumbes, in Peru, from soft mud at a depth of five fathoms.

Var. γ . *Violacea; anticè et ad umbones sublamellosa, alibi lævis; spinis valde distantibus, crassiusculis, mediocribus.*

This variety, which is almost entirely of a violet colour excepting the two white streaks which mark the line of the spines in each valve, and some white about the neighbourhood of the lower part of the anterior border, grows also to a large size. It is smooth with the exception of a few concentric lines at the *umbones* and a few *lamellæ* towards the anterior border. The spines are distant, indeed in the specimen before me there are hardly any in the place where the interior rows usually are, there being but one on one side and none on the other, with the exception of a few towards the *umbones* on both sides. The outer spines, as well as the inner one, are thick and strong but comparatively short, the longest being hardly seven eighths of an inch long in a specimen of about the same size as that from which the description of variety β was taken. Var. γ was dredged up from sandy mud at a depth of seven fathoms at San Blas in the gulf of California.

There are many gradations of colour, &c. between the varieties. I possess a specimen of variety β very nearly white, with the exception of the lunule. All the varieties are subject to have the spines, or at least some of them, tortuous.—W. J. B.

CYTHAREA VULNERATA. *Cyth. testá subglobosá, lineis concentricis creberrimis lævibus, albente fasciis angustis purpureo-sanguineis hinc et hinc ornatá; lunulá et areá posticá sub-atropurpureis; limbo ventrali rubro, intùs subcrenulato; epidermide subfusca; intùs albá subroseo suffusá: long. 1.6, lat. 0.9, alt. 1.4 poll.*

Hab. in Americá Centrali. (Real Llejos.)

The ruddy lines which occasionally gird this whitish shell, and its red border, give this species a pleasing appearance. It was dredged up from sandy mud at a depth of six fathoms.—W. J. B.

CYTHAREA PLANULATA, var. *suffusa. Cyth. planulata, testá æquilaterali, trigoná, radiis omnino suffusis; latere postico clauso.*

Hab. ad Salango.

This differs from *Cyth. planulata*, (Zool. Journ., V. p. 48,) in being more equilateral, rather more gibbose, in having the coloured rays spread all over the shell, and in being closed posteriorly. The anterior side in *Cyth. planulata* is the longer.

Found in sandy mud at a depth of nine fathoms.—G. B. S.

CYTHAREA ARGENTINA. *Cyth. testá subtrigoná, lævi, albá, subæquilaterali, latere antico paullò breviorè, postico subacuminato; margine dorsali postico rectiusculo, declivi, ventrali rotundato; epidermide tenui, cornèa, extùs velutiná, albá, quasi argentatá, indutá: long. 2.5, lat. 1.4, alt. 2.1 poll.*

Hab. ad Sinum Nocoio, Americæ Centralis.
Found in sand banks at low water.—G. B. S.

CYTHEREA PANNOSA. *Cyth. testâ obovatâ, crassiusculâ, lævi, albicante maculis strigis lineisve angulatis luridis obscure pictâ; apicibus subprominentibus: long. 1.15, lat. 0.6, alt. 0.9 poll.*

Hab. ad oras Chilenses. (Coquimbo.)
Found in sandy mud at low water.—G. B. S.

CYTHEREA PALLESCENS. *Cyth. testâ obovatâ, tenui, pallidè lutescente, lævi, concentricè striatâ; latere antico breviorè, apicibus subprominulis; intùs albâ; impressione cordiformi anticâ elongatâ, distinctâ: long. 1.4, lat. 0.8, alt. 1.1 poll.*

Hab. ad Insulam Annaan.
Found in coral sand.—G. B. S.

CYTHEREA INCONSPICUA. *Cyth. testâ obovatâ, crassiusculâ, lævi, albidâ, concentricè striatâ, striis exilissimis, epidermide tenuissimâ, pallidè subfuscâ; apicibus subprominulis; impressione cordiformi anticâ ovatâ, inconspicuâ: long. 1.2, lat. 0.65, alt. 1. poll.*

Hab. ad Paytam, Peruvix.
Found in sandy mud at low water.—G. B. S.

CYTHEREA MODESTA. *Cyth. testâ ovatâ, crassiusculâ, lævi, concentricè sulcatâ, sulcis obsoletiusculis; albâ fusco et fusco-purpurascente variâ; apicibus subprominulis; latere postico longiorè, declivi: long. 0.9, lat. 0.5, alt. 0.7 poll.*

Hab. ad Xipixapi, Americæ Meridionalis.
Found in sandy mud in from nine to eleven fathoms.—G. B. S.

CYTHEREA PECTINATA, var. immaculata. *Cyth. pectinata, testâ pallescente unicolore, intùs lutescente.*

Hab. ad Insulas Oceani Pacifici. (Lord Hood's Island, one of the Paumotu group.)—G. B. S.

Specimens were exhibited of numerous *Thrushes*, chiefly inhabitants of the Himalayan Mountains and of India; and Mr. Gould, at the request of the Chairman, brought them under the notice of the Meeting, principally with the view of indicating those of the former district as constituting a new form in the family *Merulidæ*, Vig., for which he proposed the generic name

IANTHOCINCLA.

Rostrum ferè ut in *Cinclosomate* et *Turdo* sed magis robustum: mandibulâ superiore ad basin setigerâ.

Nares basales, ovales, apertæ.

Alæ breves, concavæ, rotundatæ; remigibus 6tâ 7mâque longioribus, omnibus mollibus.

Cauda subelongata, concava, rotundata; rectricibus mollibus.

Tarsi elongati, robusti.

Hallux digitum medium longitudine subæquans, ungue forti subæquali munitus.

Typus genericus. *Cinclosoma ocellatum*, Vig.

Montium Himalayæ Incolæ.

The chief distinguishing characteristics of the genus *Ianthocincla* are the comparative length of the *tarsus*; the length of the hinder toe, and the great length of the claw by which it is terminated; the roundness, concavity, softness, and yielding character of the wings and tail; and the peculiar fullness, lightness, and downiness of the whole of the plumage, and particularly of that of the back and rump. The downy nature of the covering is alluded to in the generic name.

The following species may be referred to it.

1. IANTHOCINCLA OCELLATA.

Cinclosoma ocellatum, Vig., in *Proc. Comm. Sci. Zool. Soc.*, Part I. p. 55.—Gould, *Cent. Him. Birds*, Pl. xx.

2. IANTHOCINCLA VARIEGATA.

Cinclosoma variegatum, Vig., in *Proc. Comm. Sci. Zool. Soc.*, Part I. p. 56.—Gould, *Cent. Him. Birds*, Pl. xvi.

3. IANTHOCINCLA ERYTHROCEPHALA.

Cinclosoma erythrocephalum, Vig., in *Proc. Comm. Sci. Zool. Soc.*, Part I. p. 171.—Gould, *Cent. Him. Birds*, Pl. xvii.

4. IANTHOCINCLA SQUAMATA. *Ianth. brunnea*, plumis lunulâ nigrâ ad apicem notatis; uropygio sordidè castaneo; alis caudâque nigris, reatricibus ad apicem ochraceo-flavis.

Long. tot. $9\frac{1}{2}$ unc.; rostri, 1; alæ, 4; caudæ, $4\frac{1}{2}$; tarsi, $1\frac{2}{3}$.

Rostrum tarsique brunnei.

The inner webs of each of the primaries and the outer edges of the first seven of them are margined with a light silvery grey; the secondaries have the same parts of a dull ochre yellow becoming more ferruginous towards the shoulders.

5. IANTHOCINCLA CHRYSOPTERA. *Ianth. saturatè brunnescenti-cinerea*, alis fasciâ castaneâ notatis; fronte, facie, gutture, auribusque sordidè cinereo-albentibus; vertice nuchâque nitidè ferrugineis; scapularibus pectoreque arenaceo-rubris, hoc saturatiore, plumis lunulâ castaneâ ad apicem notatis; caudâ suprâ saturatè aurco-olivaceâ, infrâ brunneâ; remigum pogoniis externis nitidè aureo-olivaceis.

Long. tot. 10— $10\frac{1}{2}$ unc.; rostri, $\frac{7}{8}$; alæ, 4; caudæ, 5; tarsi, $1\frac{1}{2}$.

Rostrum pedesque brunnei.

The specimens exhibited of this and the preceding species were recently presented to the Society, with other selected *Birds*, by Sir Philip Grey Egerton.

6. IANTHOCINCLA RUFUGULARIS. *Ianth. suprâ olivacea*, posticè et ad caudam rufescenti tincta, plumis nigro apiculatis; vertice fasciâ alarum mediâ nigris; strigâ a rictu ad oculum juguloque albis; gulâ crissoque rufis; pectore sordidè albescente brunneo-nigricante maculato; ventre brunnescenti-cinereo; reatricibus prope apicem rufo-castaneum nigro fasciatis.

Long. tot. 10 unc.; rostri, 1; alæ, $3\frac{5}{8}$; caudæ, $4\frac{1}{2}$; tarsi, $1\frac{2}{3}$.

Rostrum flavescenti-brunneum; pedes brunnei.

The ends of the secondaries are banded with black, and their external margin is silvery white.

April 14, 1835.

N. A. Vigors, Esq., in the Chair.

Mr. Gould, at the request of the Chairman, exhibited, from the collection of the President, the Earl of Derby, a specimen of a species of *Toucan*, which he regarded as hitherto undescribed. It belongs to the same group with the other *grooved-billed Toucans*, and is consequently referrible to the genus recently proposed by Mr. Gould (Proceedings, Part II. p. 147), under the name of *Aulacorhynchus*. He pointed out the characters which distinguish it from the other species of the genus, and proposed for it the name of

AULACORHYNCHUS DERBIANUS. *Aul. viridis, suprâ in subaureum, ad occiput in cæruleum vergens; ptilis inferioribus flavescentibus; rectricibus duabus intermediis brunneo apiculatis; gula albida.*

Long. tot. $14\frac{1}{2}$ —15 unc.; rostri, $3\frac{3}{8}$; alæ, 5; caudæ 5.

DESCR. Rostrum robustum, magis quam in congeneribus angulatum, ad basin (nisi culminis) lineâ albâ cinctum, nigrum in castaneum anticè posticèque transiens. Orbitæ rufescentes. Pedes saturatè plumbei.

Mr. Gould remarked that the colouring of the extremities of the tail-feathers would alone suffice to distinguish from each other the four species at present known in this genus. In *Aul. sulcatus* the tips of the tail-feathers are not marked by any peculiar colour: in *Aul. Derbianus*, the two, and in *Aul. hematopygus*, the four, intermediate tail-feathers are tipped with brown: while in *Aul. prasinus* the whole of the tail-feathers are tipped with brownish red.

The exhibition was resumed of the hitherto undescribed *Shells* contained in the collection of Mr. Cuming. Those brought at the present Meeting under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby. They consisted of the following species and varieties of the

Genus MONOCEROS.

MONOCEROS IMBRICATUM, var. *Costis transversis, confertis, numerosis, imbricato-squamosis, squamulis ferè obsoletis: long. 2.2, lat. 1.3 poll.*

Hab. apud Terra del Fuego.

Found on rocks.—G. B. S.

MONOCEROS CRASSILABRUM, var. album. *Testâ totâ albâ: long. 2., lat. 1.4.*

Hab. apud Valparaiso.

Found on rocks at low water.—G. B. S.

MONOCEROS COSTATUM. *Mon. testá ovatá, crassá, albicante castaneo suffusá; anfractibus convexis, spiraliter costatis, costis subsquamosis; spirá brevi; labro crasso, extùs subcastaneo, intùs ruguloso; dente basali brevi: long. 1·3, lat. 0·9 poll.*

Hab. ad oras Chiliæ. (Conception.)

Found under stones at low water.—G. B. S.

MONOCEROS CYMATUM, Sow. *Mon. testá ovatá, crassá, rugosá, fuscá nigro albidoque strigatá et variegatá; anfractibus quatuor ventricosis, rugis ultimi quatuor vel quinque latis, obtusis, spiralibus; spirá exertiusculá; labro crasso, extùs sinuoso, intùs dentato, dentibus 4–6 albis: long. 1·7, lat. 1·1 poll.*

Monoceros cymatum, Sow., in Tankerville Catalogue, No. 1888.

Buccinum cymatum, Solander, MS. ined.

Icon. Monoceros lugubre, Sow., Genera of Shells, No. V. f. 3.—Wood, Suppl. t. 4. Buccinum, f. 11. 12.

Hab. ad littora Californiensiá.

Several rows of white teeth may be seen to remain within the aperture, each of which has formed the inner edge of the outer lip at the particular period of growth to which it respectively belonged.—G. B. S.

MONOCEROS ACUMINATUM. *Mon. testá ovato-acuminatá, crassiusculá, fuscéscente; anfractibus quinque vel sex, ventricosis, spiraliter costellatis, costellis interstitiisque squamuliferis decussatis; labro extùs fusco, intùs albo, lævi; spirá elongatá, acuminatá: long. 2, lat. 1·1 poll.*

Hab. ad oras Chiliæ. (Baldivia.)

This may be only a variety of *Mon. imbricatum*.—G. B. S.

MONOCEROS GLOBULUS. *Mon. testá subglobosá, castaneá, lævi, crassiusculá; spirá acuminatá; anfractibus quatuor vel quinque, ultimo maximo, ventricosissimo; labro intùs subincrassato, albo, margine externo castaneo: long. 1·4, lat. 1 poll.*

Hab. ad oras Chiliæ. (Maulé.)

Found in the clefts of rocks.—G. B. S.

MONOCEROS PUNCTULATUM, Gray. *Mon. testá ovatá, crassá, lævigatá, albidá punctulis numerosis castaneis spiraliter seriatis pictá; labro incrassato, extùs crenulato, albo, intùs dentato; dentibus quinque obtusis, albidis; aperturá intùs fuscéscente: long. 1·1, lat. 0·65 poll.*

Hab. ad Insulam Cocos, Oceani Pacifici Septentrionalis.

Found on the rocks.—G. B. S.

MONOCEROS UNICARINATUM. *Mon. testá ovato-oblongá, crassiusculá, albicante fusco variegatá; anfractibus quatuor vel quinque, spiraliter costatis, interstitiis concinnè decussatis, cariná unicá posticá; labri margine crenulato, intùs lævi: long. 0·8, lat. 0·5 poll.*

Hab.

MONOCEROS CITRINUM. *Mon. testâ ovali, crassa, laevi, citrini; apice acuminato; anfractibus quinque, superioribus plerumque unicarinatis, carinâ obtusa, ultimo gibboso; labro crasso, plerumque laevi, ætate intus dentato, dentibus validis, albis: long. 1.4, lat. 1. poll.*

Variat anfractu ultimo transversim costellato, costellis squamulosis.

Hab. apud Coquimbo.

Found in the crevices of rocks.—G. B. S.

Specimens were exhibited of various *Hymenopterous Insects*, partly from the collection of the Rev. F. W. Hope, and partly from that of Mr. Westwood. They were accompanied by characters by Mr. Westwood.

Genus PLAGIOCERA, *Klug, Jahrb. fur 1834.*

PLAGIOCERA APICALIS. *Plag. fulvo-lutescens; capite viridi-nigro, antennis nigris; pedibus albidis, apice tarsorum fusco; abdominis segmentis quatuor apicalibus purpureo-nigris; alis flavidis, stigmatate apiceque latè fuscis.*

Antennarum, nervorum alarum, et unguium structura ut in *Plag. thoracica*.

Long. corp. lin. $7\frac{1}{4}$. Exp. alar. lin. 16.

Hab. in Americâ Meridionali. Rio Janeiro.—In Mus. Dom. Hope.

Obs. Genus *Plagiocera Cimbicidas* cum *Hylotomidis* arctè conjungit.

Genus PRIONOPELMA, *Westw. (Fam. Chalcididæ.)*

Caput latum, anticè subtridentatum.

Antennæ 11-articulatæ; articulis 2do et 3tio fere æqualibus, minutis, reliquis 8 longitudine sensim decrescentibus.

Abdomen subsessile, oviductu corpore fere duplo longiore, vaginulis pilosis.

Pedes graciles, intermediis crassioribus cum tibiis paullo curvatis, calcari valido armatis, tarsis intermediis dilatatis.

Obs. Genus *Callimomem* (oviductu elongato) cum *Eupelmo* (pedibus intermediis) conjungens.

Obs. Genus *Phlebopenes*, Perty (Del. An. Art. Bras., 3.), cum *Calimomi* fortè conjungendum.

PRION. VIRIDIS. *Prion. aureo-viridis purpureo nitens; abdomine nitido; femoribus viridi-nigris, tibiis tarsisque obscurioribus, geniculis pedum intermediorum albidis; antennis nigris; alis pallide fulvescentibus, in medio paullo obscurioribus, nervis fuscis.*

Long. corp. lin. $3\frac{1}{2}$; oviductus, 5¹. Exp. alar. lin. 6.

Hab. in Brasiliâ.—In Mus. Dom. Hope.

Genus FÆNUS, *Fab.*

FÆNUS AUSTRALIS. *Fæn. piceo-niger, punctatissimus, thorace variegato; capite anticè, thoracis abdominisque lateribus, corporeque toto subtus piceo-ferrugineis; antennis nigris; pedibus piceo-ferrugineis,*

femoribus suprâ lined nigrâ notatis; mandibulis elongatis, similiter dentatis, dente valido interno basali, dentibusque tribus parvis ante apicem positis; alis vix coloratis apicibus nonnihil infuscatis.

Long. corp. lin. 7 $\frac{1}{4}$. Exp. alar. 9.

Hab. in Novâ Hollandiâ.—In Mus. Westw.

GENUS THORACANTHA, Latr.

THORACANTHA FLABELLATA. *Thor. nigro-cærulea, nitida; scutello abdomen longè superante, nitidissimo, acutissimo, ad apicem in spinas duas gracillimas desinente, longitudinalitèr striato; thorace transversim striato; alis sub scutello omnino occultatis; antennis nigris 12-articulatis, articulis duobus basalibus fulvis, reliquis nigris et singulis (ultimo elongato excepto) ramum longum emittentibus; pedibus fulvis.*

Long. corp. (scutello incluso) lin. 2 $\frac{3}{4}$.

Hab. in Brasiliâ.—In Mus. Dom. Swainson.

GENUS CAMPYLONYX, Westw. (Fam. Proctotrupidæ.)

Caput latum, oculis valdè prominulis, fronte emarginato.

Antennæ ♀ graciles, elongatæ, apicem versus parum incrassatæ.

Thorax valdè elongatus, continuus, collare longius quam latum.

Metathorax longus, bicanaliculatus.

Pedes antici valdè elongati, raptorii, tarsorum unguiculis maximis recurvatis.

Alarum nervi ut in genere Anteone.

Abdomen ovale.

Obs. A genere *Gonatopo* differt thorace continuo et alato, ab *Anteone* thoracis et antennarum structurâ.

CAMPYLONYX AMPULICIFORMIS. *Camp. niger, punctatus; abdomine lævi nitido; antennis (nisi ad basin), pedibus (nisi femoribus et tibiæ apice), collaris lateribus, marginibusque segmentorum abdominalium testaceo-rufescentibus; capite anticè obscurè flavescente; alis brevibus pallidè flavescentibus, fasciis duabus fuscis ornatis.*

Long. corp. lin. 4. Exp. alar. lin. 3.

Hab. "humi luco de Feuillent, 8 Julii, 1807," prope villam "Lyons" Galliæ.—In Mus. Com. De Jeanii.

GENUS TRIGONALYS, Westw.

Caput magnum, planum, anticè latius.

Mandibulæ validæ, 3-dentatæ.

Palpi elongati.

Antennæ capitibus cum thorace longitudine, graciles, filiformes, ad apicem attenuatæ, 24-articulatæ.

Thorax ovatus.

Abdomen convexum, anticè et posticè attenuatum, vix pedunculatum, apice incurvo.

Alæ cellulâ 1 marginali, 4 submarginalibus, quarum 1mâ majore,

2dâ elongato-triangulari, 3tiâ parvâ, nervum 2dum recurrentem excipiente.

Pedes graciles, haud spinosi, tarsis simplicibus.

OBS. Genus anomalum familiæ dubiæ. Caput et antennæ *Lydæ*, abdomen *Mutillæ*. Alarum nervi fere ut in *Myrmosâ* dispositi.

TRIGONALYS MELANOLEUCA. *Trig. nigra, punctata, subpubescens; capite anticè et lateraliter maculisque duabus parvis posticis, thorace posticè, abdominisque basi albis; alis anticis in medio fuscis.*

Long. corp. lin. 4. Exp. alar. lin. 7.

Hab. in Americâ Meridionali. Bahia.—In Mus. Brit. et Westw. Communicavit Dom. Turner.

Genus DIAMMA, Westw. (Fam. Mutillidæ.)

Corpus oblongum, nitidum, apterum.

Caput subhorizontale, fere rotundatum.

Mandibulæ elongatæ, curvatæ, graciles, dentibus tribus minutis internis.

Antennæ breves, convolutæ, ad apicem graciliores.

Thorax elongatus, binodosus.

Abdomen elongatum, convexum, segmentis basalibus subcoarctatis.

Pedes breviusculi, spinosi.

OBS. Genus *Myrmecodi* affine.

DIAMMA BICOLOR. *Diam. niger, purpureo cyaneoque nitens; antennis, pedibus, mandibulisque rufis, his ad apicem nigris.*

Long. corp. lin. 9 $\frac{1}{2}$.

Hab. in Novâ Hollandiâ.—In Mus. Westw.

Genus MERIA, Ill.

1. MERIA KLUGII. *Mer. tota nigra, nitida; alis nigris, dimidio apicali purpurascente; collari oblongo-quadrato; scuto mesothoracico lineis quatuor brevibus longitudinalibus impresso; metathorace scabroso; abdomine nitidissimo, elongato; alis cellulis submarginalibus completis tantum duabus [2dâ triangulari minutissimâ in Meriis veris pedunculatâ, in hac specie oblitteratâ]; aculeo longissimo.*

Long. corp. lin. 9 $\frac{1}{2}$. Exp. alar. lin. 12.

Hab. apud Sierra Leone.—In Mus. Dom. Hope.

2. MERIA SPINOLÆ. *Mer. nigra, nitida; capite rufo, ore antennisque nigris; abdomine utrinque maculis tribus parvis albis; alis fuscis, dimidio apicali obscuriore iridescente; tarsis piccis; alarum nervis ut in Meriis veris.*

Long. corp. lin. 7 $\frac{1}{2}$. Exp. alar. lin. 10 $\frac{1}{2}$.

Hab. apud Sierra Leone.—In Mus. Westw. Communicavit Dom. Hope.

3. MERIA MILLEFOLII, *St. Farg. & Serv., in Encycl. Meth., x. 394., a Klugio sub nomine Mer. nitidulæ, anno 1810, in tomo 2do libri 'Beiträge zur Naturkunde' descripta.*

4. *MERIA RUFIVENTRIS*, *Klug, loc. cit., tab. iv. fig. 7.*

5. *MERIA LATREILLEI*, *Fabr., (Bethyllus). Tiphia tripunctata, Panz. Tachus staphylinus, Jur.*

6. *MERIA DIMIDIATA*, *Spin. (Tachus).*

OBS. *MERIA DICHROA*, *Perty, Del. An. Art. Bras., t. 27. f. 13, haud congenerica.*

The following Notes, extracted by Sir Robert Heron, Bart., from his Journal, were read.

1814.—For a good many years I have attended to the habits of *Peafowl*, and for the last eleven have written down my observations. I find the individuals to differ as much in temper as human beings: some are willing to take care of the young ones of others, whilst some have pursued and killed them, and this whether they had a brood of their own or not. Some cocks have assisted in the care of young ones, whilst others have attacked them. An early hen frequently has a brood herself the next year. Age makes no difference in the number of the brood. I have had six from a hen a year old, and one from an old hen. The hens have frequently a great preference to a particular peacock. They were all so fond of an old pied cock, that one year, when he was confined in view, they were constantly assembled close to the trellice walls of his prison, and would not suffer a japanned peacock to touch them. On his being let out in the autumn, the oldest of the hens instantly courted him, and obtained proofs of his love in my presence. The next year he was shut up in a stable, and the hens then all courted his rival; for the advances in these birds are always made by the female.

The japanned breed are, I believe, a variety originating in England. In Lord Brownlow's numerous breed of common, white, and pied, the japanned suddenly, in my memory, appeared amongst them. The same thing happened in Sir J. Trevelyan's flock of entirely the common sort; also in a breed of common and pied given by Lady Chatham to Mr. Thoroton: and in both cases to the extinction of the previously existing breed.

1821-2.—A black Poland cock, belonging to my friend and neighbour Mr. Kendall of Barnsley, was seized last winter, near the house, by a fox, but his screams being heard by the servants, he was rescued, desperately wounded, with the loss of half his feathers. In time the remainder of his feathers came off, and he is now become perfectly white. This seems to have some relation to the human hair becoming white at once from fear.

1827.—Mr. Reid, near York, has two Water Tortoises, brought over from the siege of Belleisle, which commenced in 1761: one of them, having wandered, was missing for sixteen years, when it was found on cleaning out another pond. They are both alive, and very tame.

1833, *April 20.*—This morning I found a large white Gold-fish in great distress. A large male toad had fastened itself upon the

head and shoulders of the fish. On removing the toad, the fish swam away, apparently unhurt.

Colonel Sykes read a paper "On the *Quails* and *Hemipodii* of India," which he illustrated by the exhibition of a very extensive series of those *Birds*, belonging partly to his own collection, which was made in Dukhun, and partly to that of the Society, which has been enriched by specimens from various Indian localities.

The author prefaces his descriptions of the species by some general observations on generic distinctions and characters, and illustrates his remarks by commenting on some of the genera and species constituting the genus *Tetrao* of Linnæus and his followers. He shows that the form of beak alone is inadequate as a mark of generic distinction, and that the form, and number, and size of the toes and nails, are not always of themselves to be regarded as sufficient for generic characters. Passing to the characters deriveable from the combined consideration of the beak and feet, on which Brisson's system was founded, he remarks on some incongruous associations which were thereby occasioned. Size, the most convenient mode (in his estimation) of distinguishing the *Quails* from the *Partridges*, cannot, he remarks, be admissible as affording adequate grounds for generic distinction. Habits, also, present many difficulties in defining associations into genera; those assigned by authors to an entire group belonging frequently to only one or a few of the species included in it, while in some cases, such as that of the *common Quail*, the habits differ in different localities; that bird being in Europe migratory, while in India (and probably in China also) it is stationary: its solitary habits, except at a particular season, are preserved in India, but its evident congener, the *Cot. textilis*, is never flushed without a second being found within a few paces. Plumage, although in many genera there is an evident tendency to assume a particular livery, is evidently unsuitable for general adoption as affording adequate grounds for generic distinction, however useful it may be in the discrimination of species.

After passing in rapid review the genera adopted by M. Temminck in the family of *Tetraonidæ*, and offering brief remarks on the validity of the several groups, Colonel Sykes proceeds to state that having felt himself disappointed in his attempts to form a just and precise estimate of generic differences from external characters only, he sought in internal organization, in the form of the tongue, and in the colour of the *irides* for additional guides and evidences of affinities or dissimilarities. As regards the former of these, he turned his attention principally to the stomach, the *cæca*, the proportional length of the *cæca* to the intestine, and the proportional length of the intestine to the body. Notes of these several particulars, as observed by him in India in nearly two hundred species of animals, are now in his possession; from which he extracts and arranges in a tabular form such as relate to the *Quails* and *Hemipodii*, and, by way of further illustration, such also as relate to some species of *Perdix*, *Francolinus*, *Columba*, and *Pterocles*.

Colonel Sykes then describes in detail the following species, accompanying his descriptions by observations on their habits, and on such other points connected with them as appear to him to be interesting.

Genus *Coturnix*.

1. *Coturnix dactylisonans*, Mey.
2. *Coturnix textilis*, Temm.
3. *Coturnix erythrorhyncha*, Sykes, in Proc. Comm. Sci. Zool. Soc., Part II. p. 153.—(Perdix, Mey.)
4. *Coturnix Argoondah*, Sykes, Ibid.—(Perdix, Mey.)
5. *Coturnix Pentah*, Sykes, Ibid.—(Perdix, Mey.)

Genus *Hemipodius*.

6. *Hemipodius pugnax*, Temm.
7. *Hemipodius Taigoor*, Sykes, Ibid., p. 155.
8. *Hemipodius Dussumier*, Temm.

April 28, 1835.

William Yarrell, Esq., in the Chair.

The Chairman exhibited a portion of the vertebral column of a *Sole*, *Solea vulgaris*, Cuv., which had been sent to him by Sir Thomas Phillipps, Bart., for the purpose of illustrating the manner in which reunion takes place after fracture of the long spinous processes of the caudal *vertebræ*. Each end of the fractured bones is enlarged, and appears to have become a new centre of ossification, from whence processes have been sent out to join the neighbouring one; and where, as in this instance, several adjoining bones have partaken of the injury, the new processes have, in more than one place, united the broken portion, not to that with which it was originally connected, but to the bone immediately preceding or following it: the new bone exhibiting no appearance of disease, but possessing altogether a healthy character.

Mr. Gray exhibited a specimen of a *Toad*, which he had recently received from Swan River, whence it was sent to him by Joseph Wright, Esq. Believing it to be hitherto undescribed, he characterized it as the

BOMBINATOR AUSTRALIS. *Bomb. brunneus*; fronte, ³superciliis, guttis dorsi sparsis, vittâ lumbari, maculâ ad basin artuum alterâque ad basin pedum, maculisque majoribus irregularibus mentalibus ventralibusque flavis.

Hab. in Australiâ.

The back is generally smooth, and has some small smooth tubercles arranged along it in longitudinal series. The toes are four in number on the anterior feet, and five on the posterior: they are slender, free, and unequal.

Mr. Gray remarked, that the form of *Toad* to which the name of *Bombinator* has been given had not previously been met with beyond the limits of Europe; and added, that this Australian species agreed with the European, not only in the essential characters of the group, but in the tone and nature of its colouring, and was only specifically distinguishable by the mode in which the markings were distributed on its surface.

Mr. Gray also exhibited some specimens of the genus *Echinus*, as restricted by Lamarck and modern authors; and proceeded to explain his views with regard to its subdivision into what he considers four natural genera, adapted to facilitate the distinction of the species of this extensive group. He regards this distinction as of the more importance, in as much as some of the characters which had been

used for this purpose, such as the number of the *tesserae*, and of the pores in the *ambulacra*, have been found to be inconstant; the number of these increasing, as they are now known to do, with the age of the specimens. He proposed to divide the *Echini* as follows:

Genus 1. ARBACIA.

Corpus depressum.

Areæ ambulacrorum angustissimæ: ambulacra angusta, recta, singulo e serie simplici tesserarum biporosarum superpositarum efformato.

Tesserae ovariæ et interovariæ mediocres.

Anus valvis quatuor spiniferis tectus.

This genus corresponds with *Echinus* section A. of M. de Blainville, and contains *Arbacia pustulosa* (*Echinus pustulosus*, Lam.), *Arb. punctulata* (*Ech. punctulatus*, Lam.), &c.

Genus 2. SALENIA.

Corpus subsphæricum.

Areæ ambulacrorum angustissimæ: ambulacra angusta, recta, singulo e serie simplici tesserarum biporosarum superpositarum efformato.

Tesserae ovariæ et interovariæ maximæ.

Anus subexcentricus.

This genus is known only in the fossil state, and has hitherto even been confounded with *Cidaris*, but its tubercles are not pierced. It comprehends *Salenia scutigera* (*Cidaris scutigera*, Munst., Goldf. Petref., t. 49. f. 4.—Park., Org. Rem., t. 12. f. 13.; *Echinus petaliferus*, Desm.) and two or three other allied species in Mr. Gray's collection.

Genus 3. ECHINUS.

Corpus plus minusve depressum.

Areæ ambulacrorum latitudine dimidium arearum extraambulacralium æquantes: tesserae ambulacrales tripliciter biporosæ.

Tesserae ovariæ et interovariæ mediocres.

Anus subcentralis, squamosus; squamis spiniferis.

The ambulacral *tesserae* in this genus may be regarded as being each composed of three doubly pierced pieces: of these the upper is placed in the middle of the upper edge of the *tessera*; the next below it, on the middle of the outer edge; and the lowest on the lower part of the inner edge of the plate: so that when the plates are together, forming the *ambulacra*, the pores appear to form oblique lines, each composed of three double pores, the inner upper double pore of each line belonging to the plate above the other two double pores.

This genus contains the sections B*. C. E. and G. of M. de Blainville. The species may be divided into two very distinct sections, thus:

1. *Ambulacris angustioribus* : poris mediocribus approximatis.
a. Ore subintegro.

Of this section *Ech. esculentus* may be regarded as the type.

On this species Mr. Gray incidentally remarked that it is extremely variable in shape, becoming very high and subconical in the adult age, when it is *Ech. Melo*, Lam.; and being often subangular, in which condition it is *Ech. subangulosus*, Ejusd.

- b. Ore profundè inciso.

Ech. excavatus, Lam.; *Ech. Pileolus*, Lam.; &c.

2. *Ambulacris latis* : poris inter se tuberculis parvis sejunctis : ore 5-inciso.

Ech. ventricosus, Lam.; &c.

GENUS 4. ECHINOMÉTRA.

Corpus plus minusve depressum, sæpè oblongum.

Aræ ambulacrorum mediocres : tessera ambulacrales quinquariam vel ultra biporosæ.

Tessera ovariales et interovariales mediocres.

Anus subcentralis, squamosus; squamis sæpè spiniferis.

In this genus the ambulacral plates may be considered as being composed of five or more doubly pierced pieces, which form an arched line round the outer edge of the *tessera*, with a single pair of pores at its lower inner angle.

The spines with which the species of this genus are furnished are often of very unequal size, and they are of very variable form, some of the larger ones being very long, as in *Echinometra trigonaria*; and others very short and truncated, as in *Ech. atrata*.

Mr. Gray stated that he had formerly separated from the *Echini* some of the species of this genus which are peculiar for their oblong form, and that the genus so proposed by him had been adopted by M. de Blainville; but a much more extended examination has convinced him that individuals of the same species vary from roundish to oblong: and, therefore, having observed many round species agreeing with oblong ones in the peculiar character of the *ambulacra*, he has united them to the former, under the same name. It is to be remarked, as throwing doubt on the bilaterality of the *Echinidæ*, attempted to be established by M. Agassiz, that the spongy ovarial plate which that gentleman regarded as the mark of the hinder part of the *Echinidæ*, is always placed on one side or the other of the longer axis of the oblong species.

This genus will contain sections B**. D. and F. of M. de Blainville, as well as the *Echinometra* of that author, and many new species which are as yet undescribed.

Mr. Gray subsequently exhibited a specimen of a new genus of *Corals*, which he had recently received from the coast of Montserrat in the West Indies. The coral in question is formed almost entirely of rather large transparent rough fusiform *spicula*, which are irre-

gularly placed side by side along the stems, and are imbedded in the animal matter: the *spicula* are so abundant as to render the coral very hard, and to give it much of the appearance of a mass of arragonite, of which it has also the form. Its stem is irregularly cylindrical, rather crooked, and slightly tapering: it throws off a rather thinner branch a little below the middle of the main stem; and both the main stem and its branch end in a hemispherical head, the upper surface of which is covered with forty or fifty rather large conical tubercles, each terminating in a small central mouth. These tubercles are formed of *spicula* resembling those of the stem, the points of which arm the *apices* of the cones. The central cones are the largest and most distinct, and the marginal ones are smaller, and more or less confluent. The stem when broken exhibits similar *spicula* and a few internal cells, but it has no distinct central *axis*: the conical tubercles of the head are hollow, and they doubtless inclose and give exit through their central mouths to the *Polypes* which form the coral.

This coral appears to be most nearly allied to the genus *Zenia* (of which *Alcyonium floridum* of Esper is the type), and agrees with it in having no distinct *axis*, and in having the whole surface covered with large *spicula*, and the *Polypes* protruded from tubular cells at the end of the branches. It differs, however, from that genus in its *spicula* being much more abundant, and the coral consequently more solid, and by no means spongy; and in being less branched, with the polype-cells forming a hemispherical head, instead of a bunch of small branches. For these reasons Mr. Gray is led to consider it as forming a new genus, which, until the animal is known, he is induced to place next to *Zenia*, with the following characters:

Genus NIDALIA.

Corallium fixum, cylindricum, subramosum, subsolidum, spiculis calcareis densè indutum; apice capitato, hemisphærico, e papillis conicis inæqualibus spiculiferis formato.

NIDALIA OCCIDENTALIS. *Nid. corallio albido, subramoso.*

Hab. in littore Oceani Atlantici apud Montserrat in Indiâ Occidentali.

The specimen described is now in the collection of the British Museum.

May 12, 1835.

N. A. Vigors, Esq., in the Chair.

A letter was read, addressed to the Secretary by P. L. Strachan, Esq., and dated Sierra Leone, February 22, 1835. It referred to some *Alligators* sent from that country by the writer several months since, all of which died on their passage. It also stated that he had forwarded to the Society a *Mud Turtle* (*Trionyx?*), which, he hoped, would prove acceptable.

A letter was read, addressed to the Secretary by A. MacLeay, Esq., Colonial Secretary, New South Wales, dated Sydney, October 25, 1834. It stated that the writer had, in consequence of the application made to him, set on foot inquiries respecting that interesting *Bird* of New Zealand, the *Apteryx Australis*, Shaw; and that he had succeeded in obtaining a skin of it, (destitute, however, of the legs,) which he had forwarded to the Society. The specimen was exhibited.

The skin presented by Mr. MacLeay to the Society was obtained by him from the Rev. W. Yate, who writes to him as follows, dated Waimate, March 10, 1834: "About six weeks ago I had one of these birds in my possession, the second I have seen in the Land. I kept it nearly a fortnight, and in my absence it died. One of my boys took off the skin; the legs rotted off. I have very great pleasure in sending you the skin as it is. Should I ever meet with another, I will do all I can to preserve it for you. Its food is long earth-worms. It strikes with its bill on the ground, and seems to know by the sound where its prey lies. It then thrusts its bill into the ground, draws up the worm, and swallows it whole and alive. They kick very hard, and their legs are remarkably strong for the size of the bird. They are very rare in New Zealand, but are found in the greatest numbers at Hiku Rangi, the mountain which you mention."

Mr. MacLeay adds, that he has applied to other friends on the subject, and that, should he succeed in procuring further information, he will communicate it to the Society.

He concludes by expressing his intention of forwarding to the Society the white-fleshed Pigeon of the Colony, which, he conceives, would be a great acquisition in England: it is certainly, he says, far superior to Partridge.

Colonel Sykes, in illustration of the extended geographical distribution of some species of *Birds*, called the attention of the Meeting to a collection of *Bird-skins*, formed at the Cape of Good Hope by Captain Spiller, R.A., and presented by that gentleman to the Society. The principal object had in view was the demonstration of the identity of many species of *Birds* existing in Southern Africa, with those which Colonel Sykes had himself obtained in Dukhun. By the juxtaposition of the Cape *Birds*, and of those killed by himself in India, he showed that the following species exist equally in both those countries: several of them are also common to Europe.

Falco Tinnunculus, Linn.—South Africa, India, and Europe.

Milvus Govinda, Sykes.—South Africa and India.

Strix Javanica, Horsf.—*Strix flammea*, Linn.? Universal?

Alcedo rudis, Linn.—South Africa and India.

Oriolus melanocephalus, Linn.—South Africa and India.

Coracias Indica, Linn.—South Africa and India.

Upupa minor, Shaw.—South Africa and India.

Cinnyris Mahrattensis, Cuv.—South Africa and India.

Ardea Caboga, Penn.—South Africa, India, and Europe.

Nycticorax Europæus, Steph.—South Africa, India, and Europe.

Limosa Glottoides.—South Africa and India.

Gallinago media, Ray.—South Africa, India, and Europe.

Rhynchæa Capensis, Steph.—South Africa and India.

Cursorius Asiaticus, Lath.—South Africa and India.

Himantopus melanopterus, Horsf.—Universal.

Colonel Sykes remarked that he had previously, while illustrating his 'Catalogue of the Birds of Dukhun', read before the Committee of Science and Correspondence in 1832, shown the specific identity of many European and Indian *Birds*, especially in the orders *Grallatores* and *Natatores*.

"Some account of a hybrid *Bird* between the cock *Pheasant*, *Phasianus Colchicus*, Linn., and the grey *Hen*, *Tetrao Tetrix*, Ej., by Thomas C. Eyton, Esq.," was read. It was illustrated by the exhibition of the preserved skin of the bird, and also of a drawing made from it.

"For some years past a single grey *Hen* has been observed in the neighbourhood of the Merrington covers, belonging to Robert A. Slaney, Esq., but she was never observed to be accompanied by a *black Cock*, or any other of her species. In November last a bird was shot on the manor adjoining Merrington, belonging to J. A. Lloyd, Esq., resembling the *black game* in some particulars, and the *Pheasant* in others. In December another bird was shot in the Merrington covers, resembling the former, but smaller: it is now in my collection, beautifully preserved by Mr. Shaw of Shrewsbury.

"The hybrid bird in my possession, which is a female, may be thus shortly described :

"*Tarsi* half-feathered, without spurs, of the same colour as in the *Pheasant*. Bill resembling that of the *Pheasant*, both in colour and shape. *Irides* hazel. Crown and throat mottled black and brown. Neck glossy black, with a tinge of brown. Breast of nearly the same colour as that of the cock *Pheasant*, but more mottled with black. Tail of the same colour as in the *grey Hen*; centre tail feathers longest; under tail coverts light brown.

"The plumage of this bird is very curious; as some parts of it resemble either sex of both *black game* and *Pheasant*.

"I had an opportunity of examining the body after it was taken from the skin, and of comparing it with the *black game* and the *Pheasant*.

"The following are some remarks which I made on its anatomy :

"Left oviduct very imperfect; the ovaries very small; the eggs scarcely perceptible, and very few in number.

"The *sternum* approaches nearer to that of the *black Grouse* than of the *Pheasant*; but the bone is not so massive, the anterior edge of the keel is more scolloped, and the bone between the posterior scollops is not so broad as in the *black game*.

"The *os furcatorium* is that of the *Pheasant*, being more arched than in the *black game*, and having the flat process at the extremity next the *sternum* broader.

"The *pelvis* is exactly intermediate between the two, having more solidity, and being both broader and longer than in the *Pheasant*; but resembling that of the *Pheasant* in having the two processes on each side of the caudal *vertebræ*, which serve for the attachments of the levator muscles of the tail.

"The subjoined Table shows some comparative measurements between the hybrid bird in question, the cock *Pheasant*, and the *grey Hen*.

	Grey Hen.		Hybrid Bird.		Male Pheasant.	
	Ft.	In.	Ft.	In.	Ft.	In.
Length of the <i>tarsus</i>	0	2 $\frac{2}{5}$	0	2 $\frac{3}{4}$	0	3 $\frac{1}{5}$
Length of the middle toe	0	2 $\frac{1}{5}$	0	2 $\frac{1}{2}$	0	2 $\frac{2}{5}$
Expansion of the wings	2	0	2	2	2	4 $\frac{1}{2}$
Length of the middle tail feathers	0	4	0	7 $\frac{1}{2}$	1	7 $\frac{1}{2}$
Length of the intestinal canal from vent to gizzard	4	2	3	5 $\frac{1}{2}$	4	0
Length from the vent to the <i>cæca</i>	0	6	0	5 $\frac{1}{2}$	0	4 $\frac{1}{2}$
Length of the <i>cæca</i>	2	0	2	0	0	8 $\frac{1}{2}$

Mr. Gray exhibited, from his own collection, specimens of a *Coral*,

known to some of the English residents at Canton by the name of the *Glass Plant*. He stated that it appeared to him to be most nearly related to *Gorgonia*, although it differed widely from that genus by its axis consisting, not of a single calcareous stem, but of a congeries of almost innumerable siliceous filaments, slightly twisted together into the form of a rope. Each of these filaments, however, is composed, like the stem of *Gorgonia*, of very numerous concentric *laminæ*, which are easily separated from each other by exposure to heat, such as the flame of a candle, when the fibre splits down one side, leaving the inner *laminæ* exposed. Near their upper extremity the filaments have a wrinkled appearance, and are furnished with numerous barbs, directed backwards; towards the base they taper gradually, and become much attenuated. The crust bearing the polypes surrounds the mass of siliceous filaments, and a thin portion of it probably envelopes each of the component filaments of the rope, as it may be termed: the bark is of a leathery substance, and includes a number of small *spicula*: its outer surface is sandy: it is furnished with large, distinct, flat-topped tubercles, from which the polypes are doubtless emitted, as they are from the somewhat similar tubercles of the bark of the genus *Eunicea*. Towards the lower end of the stem the crust is discontinued; and this part is imbedded in a species of *Sponge*, which, if essential to the coral, is, however, independent of it, the sponge occurring without the coral, but the coral not having yet been found without the sponge. The coral seems to be affixed only by the intervention of the sponge, and is not flattened out at the base, like *Gorgonia*, for attachment to other bodies. In *Pennatula*, which is affixed by the insertion of its lower undilated end into yielding substances, the polypiferous crust is continued to the extremity of the stem, and does not cease, like that of the *glass-rope Coral*, at the point of immersion.

Mr. Gray remarked that this *Coral* is peculiar, as being the only body, the animal nature of which is undoubted, that is yet known to secrete silica; the *spicula* and *axis* of all other *Corals* which have fallen under his observation being purely calcareous: he has not, however, yet had an opportunity of examining the *Gorgonia Briareus*, the axis of which is described by Ellis as consisting of numerous little purple glossy needles, but in the nearly allied *Alcyonium asbestinum* (the *spicula* of which closely agree with this description) he has ascertained that the *spicula* are calcareous. In the siliceous nature of its *spicula* the *Coral* in question agrees with some of the *Sponges*, *Tethyæ*, &c.

Mr. Gray stated that this curious production had occupied much of his attention several years since, and that he had delayed the publication of his views respecting it, in the hope of being enabled, by the acquisition of more copious materials, to clear up some points

which did not appear to him to be, at that time, capable of satisfactory elucidation. He characterized it as the type of a new genus.

HYALONEMA.

Corallium simplex, subcylindricum, ad basin attenuatum et in *Spongiâ* immersum, supra basin cortice coriaceo tuberculato tectum; tuberculis sparsis, depressis, polypiferis. *Axis* e spiculis numerosis, elongatis, filiformibus, subcontortis, siliceis constans.

Polypus ignotus.

HYALONEMA SIEBOLDI.

Hab. apud Japoniam, *Dr. Siebold.*

Specimens are contained in the British Museum, to which they were presented by John Reeves, Esq.; in the Museum at Leyden; and in the collection of Mr. Gray; the latter having been purchased from the Dutch Museum, through the kindness of Dr. De Haen. A few fibres of the axis formed part of the Sloanean Collection, when it was originally acquired for the British Museum, but their nature was altogether unknown.

May 26, 1835.

N. A. Vigors, Esq., in the Chair.

A letter was read, addressed to Mr. Vigors by Philip Poole, Esq., Assistant Surgeon, Madras Medical Establishment, and dated Travancore Residency, December 17, 1834. It accompanied a collection of skins of *Mammalia*, *Birds*, and *Reptiles*, amounting in number to upwards of a hundred, which the writer presented to the Society. "The whole of the animals were obtained in the forests about twenty miles inland from Kolun or Quilon, in the Travancore country." Mr. Poole expresses his readiness to collect other objects for the Society, and calls particular attention to the "red *Mangouste*, of which," he says, "I send both male and female: they are considered a great curiosity in India, and I have been told that they are only to be found in the Travancore country."

The several *Mammalia* contained in Mr. Poole's collection were then exhibited, and Mr. Bennett brought them in succession under the notice of the Meeting. The most interesting among them, he stated, was the *Ichneumon* especially referred to by the donor, which represented a species hitherto undescribed, and differing remarkably from the usual livery of the genus. While the *Herpestes fasciatus*, he observed, deviates from the nearly universal grizzled appearance of the fur which characterizes the *Ichneumons* generally, and approaches, by the cross bands of its back and loins, to the markings of the *Suricate*, *Ryzæna tetradactyla*, Ill., the species from Travancore is equally aberrant by the possession of a longitudinal dark dash on each side of the neck, which, in some degree, seems to approximate it in point of colouring, to the *Civets*, *Civetta*, Cuv.

The almost uniform colouring of Mr. Poole's specimens, which are destitute, except on the head, of any grizzled appearance, might have been regarded as an additional deviation from the ordinary characteristics of the group; but this Mr. Bennett showed, by the exhibition of a skin which had still more recently come into the Society's possession, is by no means universal throughout the individuals of the species, the skin last referred to (which is believed to have been imported from Bombay) being grizzled, as in the other *Ichneumons*, over the greater part of its surface, and having the uniform red colour limited to the extremity of the back and the contiguous part of the tail. Notwithstanding this discrepancy in the

colouring, he stated his conviction that the Bombay animal belongs to the same species with those from Travancore; agreeing, as they do, in the possession of the remarkable dark dash along the sides of the neck, in the broad dark tip of the tail and the uniform red of its base, and in the general proportions of the body.

He characterized the species in question as the

HERPESTES VITICOLLIS. *Herp. grisea aut rubra; caudá ad basin rubrá ad apicem latè nigrá; artubus vittáque ab aure ad scapulam ductá nigris.*

Long. corporis cum capite 22 unc.; *caudæ* (sine pilis), 12½.

Hab. in Indiæ Orientalis partibus Austrum spectantibus.

Mr. Bennett stated his intention of giving a detailed description of this new species in some "Observations on the genus *Herpestes*, Ill.," which he was about to prepare, and in which he proposed to advert to the other *Ichneumons* in the Society's possession. He added, that a living individual of *Herp. fasciatus* had lately been, for a short time, in the Society's Menagerie, on its way to the collection of the President, the Earl of Derby, at Knowsley.

A skin was subsequently exhibited of a *Mammiferous* animal, which had lately been added to the Society's collection, and which Mr. Bennett regarded as the representative of a second species of his genus *Lagotis*. He pointed out the marks by which it is distinguished from the species on which the genus was originally proposed by him, and which was described in detail in the 'Transactions', vol. i. p. 35, and proposed for it, in allusion to one of the most striking of them, the name of *Lag. pallipes*. Its occurrence, he remarked, renders it necessary to characterize the two species of the

Genus LAGOTIS.

1. *LAGOTIS CUVIERI*, Benn. *Lag. auriculis caput longitudine æquantibus; vellere longiore; caudæ setis albidisque nigrisque; pedibus cinereis.*

Long. corporis cum capite 16 unc.; *caudæ* (præter pilos), 11½; *auriculæ*, 2¾; *pedis postici*, 3½.

Hab. in Peruvîâ?

2. *LAGOTIS PALLIPES.* *Lag. auriculis capite subbrevioribus; vellere brevi; caudæ setis ferrugineis; ventre pedibusque fulvescentibus, his pallidioribus.*

Long. corporis cum capite 15 unc.; *caudæ* (præter pilos), 11; *auriculæ*, 2¼; *pedis postici*, 3.

Hab. in Chiliæ montosis.

Mr. Bennett stated his intention of preparing, in consequence of

the acquisition of this specimen, a short paper, which he proposed to entitle "Additional remarks on the Genus *Lagotis*, with some account of a second Species referrible to it."

Mr. Reeve exhibited specimens of two *Shells*, which he regarded as previously undescribed, and compared them with the species most nearly related to them, which he also exhibited.

The first of them is characterized by Mr. Lake as follows :

CYPRÆA SUBVIRIDIS. *Cyp. testá ovatá, pyriformi, subventricosá; dorso convexissimo, subviridi, fasciis duabus tribusve latis, fulvo brunneoque variè picto; basi convexá, pallidá; margine subincrassato, rufescenti-brunneo, extremitates versùs subproducto; ore lineari, sublato, posticè recurvo, dentibus submagnis subdistantibus, columellá convexá: long. $1\frac{2}{3}$, lat. $\frac{3}{4}$, alt. $\frac{1}{2}$ poll.*

Hab.

This shell seems to partake of the characters of *Cyp. Errones* and *Cyp. pallida*; having for the most part the colouring and marking of the former, and the form of the latter: it is, however, specifically distinct from either. It is of a ventricose pyriform shape; the back is of a light green colour, variously painted with yellowish brown; and the margin is of a reddish brown colour, darker towards the extremities.—L.

The second species is thus characterized by Mr. Reeve :

LUCINA RUGIFERA. *Luc. testá rotundatá, lenticulari, convexiusculá, albicante spadiceo-rufescente concentricè subfasciatá; striis radiatis elevatis aliisque concentricis rugosá; intùs albá; ano trigono, impresso, minimo: long. $2\frac{1}{2}$, lat. 2, alt. 1 poll.*

Hab. ad oras Novæ Hollandiæ.

This shell is closely allied to *Luc. tigerina*, (*Cytherea tigerina*, Lam.) and appears at first sight to be the var. 3 of that species (Lam., *Anim. sans Vert.*, nouv. ed., p. 219): but upon examination it is found to differ, principally in the longitudinal *striæ* being more elevated, and crossing the transverse *striæ*, and in the interior being perfectly white: it is also from a very different locality. There is in the collection of Mr. Cuming a specimen of the variety of *Luc. tigerina* above mentioned which answers exactly to Lamarck's description.—L. A. R.

Specimens were exhibited, partly from the collection of the Rev. F. W. Hope, and partly from that of Mr. Westwood, of various *Hymenopterous Insects*, which Mr. Westwood regarded as new to science. They were accompanied by the following characters by Mr. Westwood :

Genus DIRHINUS, Dalm.

DIRHINUS MAURITIANUS. *Dir. æneo-niger*; capite thoraceque crassè punctatis, illius cornubus brevioribus obtusis; antennis nigris articulo 1mo ad basin et apicem piceo; tibiaram quatuor anticarum apicibus tarsisque omnibus testaceis; scutello in medio læviusculo; metathorace longitudinaliter 4-costato et utrinque angulato; abdomine nigro nitido, subtùs (♀) fornicato.

Long. corp. lin. 2. Exp. alar. lin. 3.

Hab. in Insulâ Mauritii, Dom. Templeton.

Genus METAPELMA, Westw. (Fam. Chalcididæ.)

Thorax ante alas elongatus, declivis.

Antennæ graciles, fere thoracis longitudine, apicem versus paullo crassiores, apice ipso obliquè truncato.

Abdomen compressum, oviductu exserto, abdominis longitudine.

Pedes intermedii longiores, femoribus paullo retrò-curvatis, tibiis calcari longo instructis, tarsis vix dilatatis subtùs ciliatis, articulo 1mo longiore: *postici* crassiores, tibiis tarsorumque basi valdè dilatatis compressis.

OBS. Genus *Eupelmo* affine.

METAPELMA SPECTABILIS. *Met. capite thoraceque viridibus cupreo nitentibus; antennis nigris; abdomine nigro, chalybeo purpureoque nitente; pedibus quatuor anticis ferrugineis viridi subnitentibus; tarsis intermediis fuscis ad basin albidis; pedibus duobus posticis fuscis, femoribus basi rufis, tibiis basi albis; oviductu nigro; alis pone medium nubeculâ vix infumatis.*

Long. corp. lin. $2\frac{1}{4}$; oviductûs, lin. 1. Exp. alar. lin. $3\frac{3}{4}$.

Hab. in Georgiâ Americæ.—In Mus. Brit.

Genus SCHIZASPIDIA, Westw. (Fam. Chalcididæ.)

Corpus breve, crassum.

Antennæ breves, crassæ, 13-articulatæ, articulis 2do et 3tio fere æqualibus, 4to—10mo internè serratis, reliquis tribus in unum coalitis.

Scutellum magnum, posticè supra abdomen productum et ejus dimidium basale superans, ad apicem furcatum.

Abdomen thorace paullo majus, suprâ planum, pedunculo (fere tertiam partem abdominis longitudine æquante) ad thoracem affixum.

OBS. *Perilampum* (habitu) cum *Eucharide* (scutello armato) conjungens.

SCHIZASPIDIA FURCIFER. *Schiz. ænea*; thoracis parte anticâ transversim striatâ; scutelli lateribus longitudinaliter sulcatis; abdo-

minis dimidio basali cæruleo, apicali fulvo; antennis pedibusque fulvescentibus; alis maculâ substigmaticali fuscescente.

Long. corp. lin. $2\frac{3}{4}$. Exp. alar. lin. $4\frac{1}{2}$.

Hab. apud Bengaliam.—In Mus. Brit.

Variat magnitudine minore; antennis profundius serratis; thorace magis sulcato; abdomine toto fulvo. (An sexus alter? ♂?)

Genus PENTACLADIA, *Westw.* (Fam. Chalcididæ.)

Eulopho affinis: differt antennis 9-articulatis, articulo 2do parvo, 3tio–7mum ramum longum emittentibus, 8vo 9noque majoribus oblongo-ovalibus; abdomine compresso.

PENTACLADIA ELEGANS. *Pent. splendidè purpureo-cærulescens, antennis obscurioribus.*

Eulopho ramicorni dimidio longior.

Hab.?—In Mus. Com. Dejean (olim Latreillii).

Genus CHALCITELLA, *Westw.* (Fam. Chalcididæ.)

Antennæ ad os insertæ, 12?–13?-articulatæ, articulo 2do brevi, 3tio et sex sequentibus paullo majoribus, valdè continuis, reliquis tribus vel quatuor massam elongato-conicam efformantibus.

Metathorax valdè declivis.

Pedunculus dimidium abdominis longitudine æquans, gracilis, cylindricus.

Femora intermedia ad basin gracilia, ad apicem subclavata; coxæ posticæ crassæ, longæ; femora postica maxima, subtus 7-dentata.

OBS. Genus *Chalcidibus* typicalibus (ex. gr. *Sispes*) affine.

CHALCITELLA EVANIOIDES. *Chalc. nigra, punctata; abdomine compresso, nitido; antennarum basi, geniculis et interdum pedunculo piccis; tibiis tarsisque magis testaceis.*

Long. corp. lin. $1\frac{1}{4}$. Exp. alar. lin. 2.

Hab. in Insulâ Mauritiî, *Dom. Templeton.*

Genus MACROTELEIA, *Westw.* (Fam. Proctotrupidæ.)

Corpus longissimum, lineare.

Caput rotundatum, thoracis latitudine.

Antennæ in utroque sexu thoracis longitudine, 12-articulatæ, ♂ articulis fere æqualibus, submoniliformibus, ♀ articulis sex terminalibus clavam crassam oblongam efformantibus.

Thorax ovatus: *scutello* inermi.

Alæ abdomine multo breviores, nervis ut in genere *Pteromalo* dispositis.

Abdomen fere sessile, longissimum, longitudinaliter striatum, seg-

mentis quatuor basalibus æqualibus, depressum, marginatum; in ♀ longius et posticè valdè attenuatum: oviductu retracto.
 OBS. Genus *Teleadi* affine.

MACROTELEIA CLEONYMOIDES. *Macr. nigra*; abdomine piceo; antennarum basi pedibusque rufescentibus; (♂): ♀ picea; capite antennarumque clavâ nigris; abdomine testaceo, apice nigro.
 Long. corp. ♂ lin. $1\frac{7}{8}$, ♀ $2\frac{3}{8}$. Exp. alar. lin. $2\frac{1}{2}$.
 Hab. in Insulâ Mauritii, Dom. Templeton.

Genus ANODONTYRA, *Westw.* (Fam. *Scoliidæ*.)

Corpus elongatum: abdomen, articulis continuis, oblongo-ovatum, ad apicem inerme.

Antennæ graciles, 13-articulatæ, articulo 2do discreto, ♂.

Mandibulæ dente valido interno ante apicem armatæ.

Palpi maxillares elongati, 6-, labiales 4-articulati.

Alarum nervi fere ut in *Tengyra Sanvitali* dispositi.

OBS. *Tengyris* affinis: statura minus elongata quam in *Tengyris* et *Myzinibus* ♂.

ANODONTYRA TRICOLOR. *An. nigra*; collari anticè flavo lineato; segmentis abdominalibus 2do, 3tio et 4to ad marginem posticum flavo interruptè marginatis, subtus etiam maculâ parvâ laterali ejusdem coloris notatis; tibiis tarsisque testaceis; alis fulvo-testaceis, ante apicem nubilo fuscescenti notatis.

Long. corp. lin. $8\frac{1}{4}$. Exp. alar. lin. $14\frac{1}{2}$.

Hab. in Chili.—In Mus. Dom. Hope.

Genus SERICOGASTER, *Westw.* (Fam. *Vespidæ*?)

Caput magnum, planum, quadratum: oculi integri, ovals.

Antennæ (♀) capite non longiores, in medio faciei insertæ, geniculatæ, 12-articulatæ, articulo 1mo longo, reliquis valdè continuis.

Labrum corneum, triangulare.

Mandibulæ mediocres, ante medium et sub apicem internè excisæ.

Maxillæ et Mentum elongatæ: palpi maxillares 6-, labiales (breviares) 4-articulati.

Labrum e lobis duobus parvis carnosis constans.

Thorax brevis: scutello haud elevato.

Abdomen ovale, subdepressum, segmentis continuis.

Pedes breves, antici (♀) haud fossorii, tibiis posticis spinosis.

Alæ anticæ cellulâ 1 marginali subappendiculatâ, cellulis 2 submarginalibus completis quarum 2dâ nervos duos recurrentes recipit.

OBS. Genus quoad affinitates dubium. *Ceramium* (habitu) *Philanthis* vel potius *Sapygis* (structurâ orali) quasi conjungens.

SERICOGASTER FASCIATUS. *Ser. niger*; scutello, antennis, pedibusque rufescentibus; femoribus posticis ad basin apiceque antennarum piceis; abdominis segmentis flavo irregulariter marginatis.

Long. corp. lin. $4\frac{3}{4}$. Exp. alar. lin. $6\frac{3}{4}$.

Hab. in Novâ Hollandiâ.—In Mus. Dom. Hope.

Genus DORYLUS, Fabr.

DORYLUS ORIENTALIS. A Dor. helvolo distinguitur, staturâ paullo graciliore, nervo recurrenti alarum anticarum pone medium areolæ submarginalis inserto, nervisque binis internis (posticarum) nervis duobus transversis connexis.

Hab. in Indiâ Orientali.—In Mus. Westw. Communicavit Dom. W. W. Saunders, F.L.S.

Mr. Owen read a paper "On the Anatomy of *Distoma clavatum*, Rud.," an Entozoon of an intermediate grade of structure between the two subjects, *Trichina* and *Linguatula*, which he has recently brought under the notice of the Society: the one manifesting simply a homogeneous granular pulp enveloped in a transparent, thin, elastic tegument; and the other having distinctly developed nervous ganglia and filaments, a muscular tunic, a digestive canal contained in an abdominal cavity, ovaries, oviduct, and fecundating glands.

The specimen of *Dist. clavatum* examined by Mr. Owen measured 2 inches and 2 lines in length, and $1\frac{1}{2}$ inch in circumference at its thickest part. Its outer integument was thin, crisp, and semitransparent; transversely and minutely wrinkled, and evidently fibrous in the same direction; and adhering but slightly, at least after maceration in spirit, to the succeeding layer. This latter tunic was evidently muscular, and was composed of longitudinal fibres: it adhered pretty closely to the membrane immediately inclosing the cellular *parenchyma* of the body, but was separable from it by careful manipulation. The muscular tunic was beautifully ornamented by tortuous vessels containing a dark-coloured fluid.

The anterior orifice is surrounded by a muscular sphincter, forming a suctorious disc, at the bottom of which is a minute orifice leading to the digestive tubes. These are two in number, and are continued, slightly enlarging and diverging from one another, to the cells at the posterior part of the body.

The large cup-like cavity, about 3 lines posterior to the anterior end of the animal, is simply for adhesion, and has no communication with the interior of the body; but immediately in front of it is a small transverse slit, concealed by the wrinkles of the integument, which forms the outlet of the generative organs.

At the posterior extremity of the body there is a minute central orifice, leading into a narrow cavity formed between two layers of a

villous membrane, extending vertically across the terminal dilated part of the animal. Between this cavity and the rest of the body no communication could be detected, on the most minute inspection. Its internal surface is of a yellowish white colour, and smooth. Its function is probably excretory, and it may, therefore, be regarded as exhibiting a rudimentary condition of the respiratory system. On each side of it is a large lateral cavity, internally black and minutely wrinkled, and filled (in the individual examined) with a dark brown fluid, similar in appearance to partly digested blood. This nutriment is conveyed to the lateral cavities by the intervention of the smaller cells anterior to those from the two alimentary canals leading from the mouth, and is distributed into the dark-coloured vessels of the muscular tunic: so that the lateral cavities, analogous to those which have been considered as chyle-receptacles in *Amphistoma*, &c., hold an intermediate position between the alimentary and the sanguiferous canals. The cells at the smaller end of the body were occupied by a yellow fluid, containing numerous *ova* of the same colour, many of which had thence passed into the tortuous oviduct.

Distoma is thus seen to possess, in addition to the cellular *parenchyma* of the body, the three systems of canals, digestive, vascular, and generative, which are usually met with in the *Trematoda*. An analogy to the *Leech* may be traced, not merely in the external suckers, but also in the form of the cells, which at the posterior part of the body communicate with, and form part of, the digestive apparatus, especially of the two last cavities, which very closely resemble the last pair of gastric *cæca* that occupy, in the *Leech*, a similar position.

The reading of the paper was illustrated by the exhibition of the animal described in it, and of drawings of its several parts.

Mr. Owen subsequently read "Some Remarks on the *Entozoa*, and on the Structural Differences existing among them; including Suggestions for their Distribution into other Classes."

The difficulty of assigning to the internal parasites of other animals a definite character, by which they may be distinguished as a class, is evident on a mere inspection of the definition proposed for the *Entozoa* by Cuvier: it rests chiefly on their *habitats*, and on certain negative properties, and attempts to combine with these a general resemblance of form. Rudolphi at one time imagined that he had overcome this difficulty, by denying to the *Entozoa* a nervous system; but he was subsequently under the necessity of regarding the *Nematoidea* as excluded from this definition, and he proposed to associate this portion of the *Entozoa* with the *Annelida*. But the possession by the *red-blooded Worms* of a distinct respiratory system would alone be sufficient to forbid this association, even if the essen-

tial character of ganglions on the nervous chords were not also present to negative it absolutely. As the *Nematoidea* differ from the *Parenchymatous Worms* by possessing a distinct nervous system as widely on the one hand, as they do from the *Annelida* in the form of that system on the other, Mr. Owen has been induced to associate them with those other classes of the *Radiata* of Cuvier which, while they are distinguished from the rest of the division by the undoubted presence of nerves, agree with the *Nematoidea* in manifesting these organs in the form of simple ungangliated disconnected chords.

The subdivision of Cuvier's *Radiata*, proposed by Mr. W. S. MacLeay, into two principal groups, the *Acrita* and the *Radiata*, may be regarded as consonant with the system of nature, although the latter, by the exclusion of the *Nematoidean Worms*, is too restricted as to its contents: the definition of the former group given by its proposer requires also modification, in consequence of the vast discoveries which have of late years been made in the organization of the animals comprised in it. Mr. Owen discusses the several characters assigned to the *Acrita*, and dwells particularly on the variations in the generative system which range from gemmation and spontaneous fission, observed only in this group in the animal kingdom; to the cryptandrous or productive form only, which occurs in the *Cystici* and *Cestoidea*; to the superaddition of a fecundating gland to the ovary, as in *Trematoda*; and to the separation of the sexes, as in the *Acanthocephala*: so as already to typify almost all the modes of generation by which the higher races of animals are perpetuated.

Mr. Owen regards the molecular and the filiform condition of the nervous system as respectively furnishing the primary characters of the *Acrita* and the *Radiata*; although traces of longitudinal nervous chords may be met with in *Echinorhynchus* and in the *Acalephæ*. Another distinction of great moment is the absence, in the *Acrita*, of a distinct abdominal cavity separating the digestive cavity from the *parietes* of the body; the digestive cavity in those animals, whatever may be its form, being essentially a simple excavation of the *parenchyma*. The vascular system, where traces of it are met with in the *Acrita*, corresponds with the digestive system in being equally devoid of proper *parietes*, and consisting of canals excavated in the parenchymatous substance of the body, in which a cyclosis of the nutritive fluids, analogous to that of plants, is observed, but no true circulation.

In the *Acrita* subkingdom, with the exception of the generative and digestive organs, all the other systems are more or less blended together, and the corporeal *parenchyma* seems to possess many functions in common. Where a distinct organ is eliminated, it is often repeated almost indefinitely in the same individual. Thus, in the *Polypi* the nutritious canals are supplied by a thousand mouths; in

the *Polygastrica* there is an analogous multiplication of the digestive cavity itself; the generative system becomes the subject of this repetition in the *Tæniæ*, each joint being the seat of a separate ovary; and the *Sponges*, which exhibit in their calcareous and siliceous *spicula* the first rudiment of an internal skeleton, repeat again and again, without modification, in the same individual the same *spiculum*. The *Acrita* offer, as it were, the germs of the higher animal forms, and sketch forth the ideas of the typical condition of the principal subdivisions of the animal kingdom.

As classes of *Acrita* Mr. Owen proposes to regard the *Polygastrica*, the *Spongiæ*, the *Polypi*, the *Acalephæ*, and the *Vers Intestinaux Parenchymateux* of Cuvier, for which latter he proposes the name of *Sterelmintha*.

Among the *Radiata*, for which he uses the name *Nematoneura*, he includes the *Echinodermata* and the *Rotifera*, together with the *Vers Cavitaires* of Cuvier; which latter he subdivides into the *Epizoa* and the *Cælelmintha*, a term proposed by him to comprise all the *Nematoidea*, together with the genera *Linguatula* and *Sipunculus*.

He passes in rapid review the several systems of the *Cælelmintha*, and remarks on the generative functions, that the same variations which are met with in the *Sterelmintha* occur in this series also. We have the simple female apparatus without male organs, or the cryptandrous type, in *Sipunculus*; the superadded male glands, but without reciprocal fecundation, in *Linguatula*; and the separate sexes in the *Nematoidea*.

In conclusion, Mr. Owen gives the following list, distributed according to his views of the

ENTOZOA HOMINIS.

Subregnum ACRITA.

Classis (INFUSORIA, CUV.).

1. *Cercaria Seminis* cui locus Semen virile.
2. *Trichina spiralis* Musculi voluntarii.

Classis STERELMINTHA.

3. *Echinocercus Hominis* Hepar.
4. *Cysticercus Cellulosæ* Musculi et cerebrum.
5. *visceralis* Viscera generatim.
6. *Tænia Solium* Intestina tenuia.
7. *Bothriocephalus latus* Intestina tenuia.
8. *Polystoma Venarum* Venæ.
9. *pinguicola* Ovaria.
10. *Distoma hepaticum* Vesica fellea.

Subregnum NEMATONEURA.

Classis CŒLELMINTHA.

- | | |
|----------------------------------|----------------------------|
| 11. <i>Ascaris vermicularis</i> | Intestinum rectum. |
| 12. <i>Lumbricoides</i> | Intestina tenuia. |
| 13. <i>Strongylus Gigas</i> | Ren. |
| 14. <i>Spiroptera Hominis</i> | Vesica urinaria. |
| 15. <i>Trichocephalus dispar</i> | Cæcum et intestina crassa. |
| 16. <i>Filaria branchialis</i> | Glandulæ branchiales. |
| 17. <i>Medinensis</i> | Substantia cellulosa. |
| 18. <i>Oculi</i> | Oculus. |

June 9, 1835.

William Yarrell, Esq., in the Chair.

At the request of the Chairman, Mr. Thompson of Belfast exhibited numerous specimens of *Birds* and *Fishes*, some of which were new to the British, and many to the Irish, Fauna. With reference to these specimens, and to others not in his own possession, he read the following notes.

“Of the following species of *Birds*, *Fishes*, &c., the first four are additions to the British Fauna: the remainder are species hitherto unpublished in the Fauna of Ireland.

Canada Owl, *Surnia funerea*, Dum. An *Owl* of this species, preserved in the collection of Dr. Burkitt of Waterford, was taken on board a collier, a few miles off the coast of Cornwall, in March, 1830, being at the time in so exhausted a state as to allow itself to be captured by the hand. On the arrival of the vessel at Waterford, whither she was bound, the bird was given to a friend of Dr. Burkitt, with whom it lived for a few weeks, and then came into his possession. The very circumstantial account of the capture of this bird given by Captain Stacey of the collier, leaves no doubt of its accuracy.

Lough Neagh Coregonus. In September last a comparison of the Lough Neagh *Coregonus* with the *Vendace* of Loch Meben (whence I procured specimens, through the kindness of Sir William Jardine, Bart.,) proved to me that these species are distinct. The disagreement of the former with the *Gwiniad*, or *Coregonus* of Wales, as described by Pennant, was at the same time very obvious; and from the examination of an individual of the latter species (lately favoured me by Mr. Yarrell) and specimens of the Lough Neagh Fish, I am fully satisfied that they are specifically different.

From the *Gwiniad*, the *Pollan* or Lough Neagh *Coregonus* differs in the snout not being produced; in the scales of the lateral line; in having fewer rays in the anal fin, and in its position being rather more distant from the tail; in the dorsal, anal, and caudal fins being of less dimensions; and in the third ray of the pectoral fin being longest, the first being of the greatest length in the *Gwiniad*.

From the *Pollan*, the *Vendace* or Loch Meben *Coregonus* differs so essentially in its lower jaw being the longer, as well as in its being turned upwards, as to render it unnecessary to draw further comparison.

The *Pollan* is very uniform in size, its ordinary length being about 10 inches: none that I have ever seen exceeded 12. The relative length of the head to that of the body is as 1 to about $3\frac{1}{2}$: the

depth of the body equal to the length of the head : the jaws equal, both occasionally furnished with a few delicate teeth ; the tongue with many teeth : the lateral line sloping downwards for a short way from the *operculum*, and thence passing straight to the tail : nine rows of scales from the dorsal fin to the lateral line, and the same number thence to the ventral fin ; the row of scales on the back and that of the lateral line not reckoned : the third ray of the pectoral fin the longest. D. 2+12. P. 16. V. 1+11. A. 2+11. C. 19. B. 9.—*Vertebræ* 59.

Colour to the lateral line dark blue, thence to the belly silvery ; dorsal, anal, and caudal fins towards the extremity tinged with black ; pectoral and ventral fins of crystalline transparency, excepting at their extremities, which are faintly dotted with black. *Irides* silvery, pupil black.

As not one of the *Coregoni*, of which I can find descriptions, agrees with the Lough Neagh species, I am induced to consider it as new, and venture to propose for it the name of *Coregonus Pollan*, as by this triviale appellation it is invariably known in its native district.

Cephaloptera, Dum. A fish of this singular genus, taken about five years ago on the southern coast of Ireland, and thence sent to the Royal Society of Dublin, is at present preserved in their Museum. In breadth it is about 45 inches. The specimen being imperfect, and the characters of some of the species being ill defined, I hesitate applying to it a specific name. It somewhat resembles the *Ceph. Giorna*, as figured by Risso.

Physalia pelagica, Eschsh. On the 13th of March, 1834, a specimen of this *Physalia* was found by Miss Ball of Youghal, on the coast of the county of Waterford, near Ardmore. When taken up it exhibited great brilliancy of colour. To Mr. Gray I am indebted for the opportunity of consulting the work of Eschsholtz (*Syst. der Acaleph.*), according to which the *Phys. pelagica* of Lamarck differs from this, being identical with his *Phys. Caravella*. The *Phys. tuberculosa* of Lamarck is considered by Eschsholtz synonymous with his *Phys. pelagica*.

Orange-legged Hobby, *Falco rufipes*, Bechst. An immature specimen of this bird, shot in the county of Wicklow in the summer of 1832, forms part of the collection of T. W. Warren, Esq., of Dublin.

Snowy Owl, *Noctua nyctea*, Sav. About the 26th of March, 1835, one of these birds was shot near Portglenone, county Antrim, and came into possession of Dr. Adams of that place, who presented it to the Natural History Society of Belfast : the individual now exhibited is said to have been seen along with it. On the 21st of the same month a bird of this species was seen on an open or heath-covered moor about twenty miles distant from Portglenone, by two of my friends, within a few yards of one of whom it sprung, just as he had fired at a *Snipe*.

In Dublin I subsequently saw a specimen of this *Owl* which had been shot in the county of Mayo, also in the month of March ; and I

am credibly informed that a few others were obtained about the same time in different parts of Ireland.

Great spotted Woodpecker, Picus major, Linn. A specimen of *Pic. major*, preserved in the Museum of the Royal Dublin Society, was shot in the vicinity of that city a few years since. In the manuscript Notes of the late Mr. Templeton it is stated that an individual of the same species was sent to him, in August, 1802, from the county of Londonderry.

Little Bustard, Otis Tetraz, Linn. Two birds of this rare species were seen in the county of Wicklow, on the 23rd of August, 1833, and one of them was shot by Mr. Reside, for whom it was set up by Mr. W. S. Wall, Bird Preserver, Dublin.

Velvet Scoter, Oidemia fusca, Flem. In December, 1833, a specimen of this *Duck* was killed at Clontarf, near Dublin. Its occurrence on the Irish coast in one or two other instances has been communicated to me.

Red-necked Grebe, Podiceps rubricollis, Lath. Dr. J. D. Marshall of Belfast informs me that a specimen of this bird, which he possesses, was procured in the neighbourhood of that town in the autumn of 1831.

Great Auk, Alca impennis, Linn. One of these birds, taken in 1834 off the coast of the county of Waterford, is preserved in the collection of Dr. Burkitt of Waterford. It lived in confinement for some months.

In Sampson's 'Londonderry' it is erroneously stated that *Alca impennis* frequents the rocks of that county as well as those of Donegal: the *Razor-bill, Alca Torda*, Linn., which is common to both counties, being omitted in Mr. Sampson's Catalogue, is, I presume, the bird alluded to under the name of *Alca impennis*.

Pomarine Skua, Lestris Pomarhinus, Temm. Of this *Skua*, three specimens were procured in different parts of Ireland, within a short period, about the commencement of the winter of 1834-5. The first, purchased alive at Youghal, county Cork, on the 12th of October, was caught upon a hook, at sea, and lived for a few weeks, part of which time it was in the Garden of the Zoological Society of Dublin. The second specimen was shot in Belfast Bay, on the 18th of October, and is in the collection of Dr. J. D. Marshall. Both these individuals were immature. The third, an adult bird, was shot from among a flock of *Gulls*, in the Phoenix Park, Dublin, on the 5th of November, and, with the first mentioned, is in the possession of Robert Ball, Esq., of Dublin.

Sapphirine Gurnard, Trigla Hirundo, Linn., is commonly taken on the north-east coast of Ireland: it not unusually attains 2 feet in length. By the Howth (county Dublin) fishing-boats I have seen this species brought ashore in considerable quantity.

Lineated Gurnard, Trigla lineata, Linn. On the 28th of February,

1835, Dr. J. D. Marshall, being attracted by the peculiar colour of a *Gurnard* in Belfast Market, kindly communicated the circumstance to me, and on inspection of the fish, I found it to be the *Trigla lineata*, and learned that it had been taken in Strangford Lough. Its length is 16 $\frac{7}{8}$ inches. On the 3rd of March I procured another specimen, but of smaller dimensions, from the same locality.

Long-spined Cottus, Cottus Bubalis, Euphr. This appears to be more common on the Irish coast than *Cott. Scorpius*, Linn. I have taken it off Down, and in Galway Bay, and have seen a specimen of Mr. Ball's from the harbour of Cork. Of eleven specimens of *Cott. Bubalis* and *Cott. Scorpius* examined by me, which were obtained in the north-east, the west, and the south of Ireland, and preserved without any regard to species, eight were of the former, and three of the latter.

One specimen of *Cott. Bubalis*, taken in Belfast Bay, and preserved in the Museum of that town, is 7 inches in length.

Pogge, Aspidophorus Europæus, Cuv. & Val., (*Cottus Cataphractus*, Linn.). Specimens of this fish, from the coast of Down, have been sent to me by Captain Fayrer, R.N.; and in Mr. Ball's collection is one from the coast of Cork.

Bonito, Scomber Pelamys, Linn. Of this species, rarely captured in the British seas, one taken on the coast of Wexford, some years since, was sent in a fresh state to the Royal Dublin Society, and is preserved in their Museum: its length is 29 inches.

Atherine, Atherina Presbyter, Cuv. This is taken plentifully on the coast of Down, especially in Strangford Lough. Of about forty specimens from this locality, which I examined in January last, the average length was 6 $\frac{1}{2}$ inches; a few were 7, and one was 7 $\frac{1}{2}$ inches long. Mr. Ball informs me that the *Atherine* is not unfrequently taken along with *Sprats* at Youghal, and that on the 14th of September last he saw a shoal of them at Portmarnock, county Dublin, where a stream had formed a pool in the sand below high-water mark.

Smooth Blenny, Blennius Pholis, Linn. This is more commonly to be met with than any other species of fish in the rocky pools on the north-east coast of Ireland: specimens have been sent to me from the south by Mr. Ball; and in Galway Bay, on the western coast, I captured a few individuals in June, 1834.

Wolf Fish, Anarrichas Lupus, Linn., is occasionally taken on the eastern coast of Ireland. The Museum of the Royal Dublin Society contains a native specimen.

Black Goby, Gobius niger, Linn.? Of the *black Goby*, as generally recognised by British authors, a specimen taken at Youghal has been submitted to me by Mr. Ball. In a paper read before the Linnean Society last year, I showed that the *Gob. niger* of Pennant, and the fish to which Donovan applies the same name, are two di-

distinct species. To the latter Mr. Yarrell has since given the name of *Gob. bipunctatus*.

Sordid Dragonet, Callionymus Dracunculus, Linn. A specimen of this fish, taken at Youghal in August last by Mr. Ball, is in his collection.

Ballan Wrasse, Labrus maculatus, Bloch, occurs commonly, and of a large size, on the coasts of Down and Antrim, often attaining upwards of 20 inches in length.

Striped Wrasse, Labrus variegatus, Gmel., is occasionally taken on the Down and Antrim shores: a specimen from the south has been sent to me by Mr. Ball: and in the Museum of the Royal Dublin Society one is preserved, which was purchased in Dublin Market.

Goldfinny, Crenilabrus Cornubiensis, Yarr. I have seen but one Irish specimen of this fish, which was taken at Youghal by Mr. Ball. The proportion of spiny to soft rays in its dorsal fin is but 13 + 10; otherwise it agrees with this fish as commonly described.

Salmo ferox, Jard. & Selby. A large species of *Salmo*, found in Lough Neagh, and known there by the name of *Buddagh*, has long attracted attention.

In Harris's 'History of the County of Down', published in 1744, it is remarked (p. 236), 'This *Buddagh* seems to be the same fish found in the lake of Geneva, and called by Gesner and Aldrovandus *Trutta lacustris*.' In Sampson's 'Londonderry', and Dubourdieu's 'Down', it appears as *Salmo lacustris*. However, upon seeing a specimen of the Loch Awe trout, named *Salmo ferox* by Sir William Jardine and Mr. Selby, at the last Meeting of the British Association, I recognised it as identical with the *Buddagh* of Lough Neagh.

Small-headed Dab, Platessa microcephala, Flem., is occasionally brought from the Down coast to Belfast Market, where it is known by the name of *Lemon Sole*.

Whiff, Pleuronectes megastoma, Don., occurs, though very rarely, on the north-east coast of Ireland.

Pleuronectes punctatus, Penn. On the 25th of March, 1835, I procured a specimen of this fish, 6 $\frac{1}{2}$ inches in length, from Ardglass, county Down, where it must be very rare, being quite unknown to the fishermen.

Ocellated Sucker, Lepadogaster Cornubiensis, Flem. The only Irish specimen of this fish which I have seen was taken by Wm. H. Harvey, Esq., of Limerick, on the coast of Clare.

The number of fin-rays in this specimen differs very much from that stated by Pennant and Donovan to exist in the *ocellated Sucker*:

Pennant gives D. 11. A. 9. V. 4;

Donovan D. 11. A. 10. P. 17. C. 6;

Mr. Harvey's specimen has D. 20. A. 11. V. 4. P. 19. C. 14. B. 6;

and exhibits, in addition to the two filaments which appear before each eye, a third fleshy appendage placed nearer to the eye, and unconnected with the others.

Notwithstanding these discrepancies, the general accordance of Mr. Harvey's fish with the figures of the *ocellated Sucker* given by the authors above quoted, and its possessing the character whence the trivial name has been derived, make me unwilling, without further investigation, to consider the species distinct.

A notice of two specimens of *Lepadogaster bimaculatus*, Flem., having occurred to me on the coast of Down, was, early in the present session, communicated to the Linnean Society, it being at the same time remarked that the spots from which the species had obtained its scientific as well as trivial name were in both instances wanting. Since that time I, on one occasion, took upwards of a dozen specimens of this fish, by deep dredging in Belfast Bay: one or two of these were also immaculate.

Leptocephalus Morrisii, Penn. By the kindness of scientific friends I am enabled to mention the occurrence of six specimens of *Lept. Morrisii* on the coast of Ireland. Mr. Ball has thus written me respecting it: 'The first I saw was at Cove, in 1809. I was at the capture of a second at Clonakilty, in 1811. I caught one myself at Youghal, in 1819, and procured another which was taken there. The fifth, the specimen which I have preserved, was taken in a shrimp-net, at Youghal also, in 1829; the four others having been found under stones, near low-water mark.' Dr. J. L. Drummond informs me that when in Bangor, county Down, in June, 1831, a specimen of *Lept. Morrisii*, about 4 inches in length, was brought to him: it had been just taken from a pool left in the sand by the ebbing tide, and was almost perfectly transparent.

Syngnathus Ophidion, Linn. Of this fish I have seen a few specimens, which were obtained by Mr. G. C. Hyndman at the entrance of Strangford Lough, in March, 1832.

Ammocetes branchialis, Flem. I have specimens of this fish from the county of Kildare.

The oceanic shell *Ianthina exigua*, Sow., which was, I believe, for the first time noticed in 1834, as occurring on the English coast (Turton, in Mag. of Nat. Hist., vol. vii. p. 352), and never before on that of Ireland, was obtained in considerable abundance in September, 1834, at Kilkee, on the coast of Clare, by Mrs. James Fisher, of Limerick."—W. T.

Mr. Thompson also read the following notes respecting two *Birds*, which he regarded as interesting on account of the rarity of their occurrence.

Scolopax Sabini, Vig. The specimen exhibited of this very rare bird is one of the four individuals noticed by Mr. Yarrell in a paper on British *Snipes*, which appeared in the 'Magazine of Natural Hi-

story' for 1830 (vol. iii. p. 29). It is there merely mentioned as "a third specimen, lately mounted by a London bird preserver", and no particulars respecting it have yet appeared. It was shot by Captain Bonham of the 10th Hussars (who most kindly ordered it to be sent hither from Brighton for my inspection), at the end of November or beginning of December, 1827, near Garvagh, in the county of Londonderry, being the second individual killed in Ireland. In a letter to a mutual friend, Captain Bonham remarks of this bird, that it sprung from the side of a high heathery hill, from which *common Snipes*, *Scol. Gallinago*, Linn., were at the same time raised, but that it did not call as they do. His want of success in obtaining it before the third shot afforded Captain Bonham an opportunity of remarking its disregard for his presence, which was manifested by its alighting quite near again, after being fired at, in the manner of the *Jack Snipe*, *Scol. Gallinula*, Linn.

Larus Sabini, Sab. A third specimen of this bird occurred last autumn in Ireland. It was shot on or about the 15th of September, 1834, on the shore of Belfast Bay, near Claremont, the residence of Mrs. Clewlon, in whose possession it now is. It is a young bird of the year, and in plumage similar to the other two individuals of this species, which I had the satisfaction of announcing to the Linnean Society last year as having been obtained in Ireland.—W. T.

Mr. Thompson subsequently read the following notice respecting the

Larus Argentatoides, Swains. & Rich. "On submitting six mature specimens of the *Herring Gull* of the north of Ireland to a critical examination, similar to that pursued in the second volume of the 'Fauna Boreali-Americana' by Mr. Swainson and Dr. Richardson, I ascertained their identity with the *Lar. Argentatoides* of that work (vol. ii. p. 417). Between the largest and the smallest of these specimens there was a difference in total length of from $22\frac{1}{2}$ to $24\frac{1}{2}$ inches, and in their *tarsi* of from 27 to 32 lines. The second quill in two individuals, exhibited, in addition to the white tip, 'a round white spot on its inner web'; in this respect agreeing with the *Lar. Argentatoides* as described in the work referred to, and previously by C. L. Bonaparte in his 'Synopsis of the Birds of the United States' (Ann. of Lyc. of New York, vol. ii. p. 360); the second quill in three of these specimens wants this white spot, in which particular they agree with the *Lar. argentatus*, as contradistinguished by Bonaparte from the *Lar. Argentatoides*: the same quill in the sixth specimen is in an intermediate state, a round white spot, not more than $\frac{1}{3}$ of an inch across, appearing on it in the one wing; the second quill of the other wing in the same individual exhibiting a white spot fully half an inch in diameter: thus proving that this marking is so inconstant that it should not be relied on as a character."—W. T.

Mr. Thompson finally exhibited, from the collection of Mr. Ball,

the first specimen of the *American Cuckoo*, *Coccyzus Americanus*, Bon., recorded in the British Catalogue; and showed its identity of species by comparing it with an American specimen exhibited for that purpose.

He also exhibited one of the two specimens of the *Noddy*, *Sterna stolidus*, Linn., noticed by him before the Linnean Society last year as having been obtained near the coast of Ireland.

The exhibition was resumed of the previously undescribed species of *Shells* contained in the collection of Mr. Cuming. Those brought on the present evening under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby, and comprised the following species of the

Genus PINNA.

PINNA RUGOSA. *Pinna testá magná, rudi, trigoná, longitudinaliter obtusè radiatim costatá, posticè latá, rotundatá; costis posticè squamiferis, squamis magnis, elongatis, irregularibus, subrecurvis, foliaceis, tubulosis; margine dorsali recto, antico ventrali subcoarctato: long. 9°, alt. (ad partem posticam) 6° poll.*

Hab. in Sinu Panamensi. (Isle of Rey.)

One of the specimens obtained by Mr. Cuming measures eighteen inches in length. They were procured from sand banks.—G. B. S.

PINNA MAURA. *Pinna testá oblongá, tumidá, fusco-nigricante, longitudinaliter radiatim costatá; costis parvis, obtusis, subobliteratis, posticè squamiferis, squamis fornicatis, subreflexis, ventralibus minoribus; margine dorsali rectiusculo, postico subrotundato, ventrali postico subventricoso, ventrali antico declivi: long. 10·5, alt. (ad partem posticam) 5·5 poll.*

Hab. apud Panamam.

Obtained from muddy banks.—G. B. S.

PINNA TUBERCULOSA. *Pinna testá subtrigoná, altá, fusco-nigricante squamulis pallidioribus, obsoletè subradiatá, radiis squamuliferis, squamulis foliaceis, brevibus, posticè incurvis, fornicatis, tubercula simulantibus; margine dorsali recto, postico subdeclivi, ventrali subrotundato; angulis posticis rotundatis; vertice subadunco: long. 8°, alt. (ad partem posticam) 6° poll.*

Hab. apud Panamam.

Obtained, like the last species, from muddy banks.—G. B. S.

PINNA ALTA. *Pinna testá trigoná, flabelliformi, radiatim longitudinaliter costellatá; costellis angustis, muricatis (posticè præcipuè), squamulis paucis, longioribus, ventralibus subobsoletis; margine dorsali recto, postico alto rotundato, ventrali ventricoso; vertice subadunco: long. 5·5, alt. (ad partem posticam) 4·5 poll.*

Hab. in Sinu Honduras.

Found on sand banks.—G. B. S.

PINNA LANCEOLATA. *Pinna testá lanceolatá, supernè radiatim lon-*

gitudinaliter costellatá, infrà ferè muticá; costellis distantibus, muricatis, squamuliferis, squamulis distantibus, subrecurvis, longioribus; margine dorsali recto, postico rectiusculo, subdeclivi, ventrali subventricoso: long. 7·75, alt. (ad partem posticam) 3·5 poll.

Hab. apud Puerto Porrero.

Dredged from sandy mud at a depth of thirteen fathoms.—G. B. S.

PINNA SQUAMIFERA. *Pinna testá sublanceolatá, corneá, costellis paucis squamiferis longitudinaliter radiatá, squamis subdistantibus, majoribus, latiusculis, subreflexis, rotundatis, hyalinis; margine dorsali recto, postico ventralique rotundatis, continuis; areá ventrali rugosá: long. 6', alt. (ad partem posticam) 3' poll.*

Hab. ad Caput Bonæ Spei.—G. B. S.

PINNA AFRA. *Pinna testá lanceolatá, corneá, subradiatim costellatá et fusco pictá; costellis subobsoletis, posticè squamuliferis, squamulis latiusculis, laxis, sparsis; margine dorsali ventralique æqualibus, postico brevi, subrotundato: long. 6', alt. (ad partem posticam) 2·5 poll.*

Hab. ad Caput Bonæ Spei.—Communicavit Dom. Ed. Verreaux.—G. B. S.

Mr. Gray exhibited specimens of two *Corals*, which he regarded as the types of two genera not previously distinguished. He characterized them as follows:

ERRINA.

Corallium solidum, calcareum, durum.

Cellulæ tubulares, prominentes, supernè longitudinaliter fissæ, ad apices ramorum undique sparsæ: fossâ profundâ minimâ sæpe sub basin cellularum sitâ.

Polypus adhuc incognitus.

The type of this genus is the *Millepora aspera* of Esper (Supp., i. t. 18. Lam., ii. p. 201.).

It is probable that the *Mill. tubulifera*, Lam., and the *Mill. pinnata*, Eij., are also referrible to it.

ANTHOPORA.

Corallium durum, lapidosum; superficie granulosâ, scabrâ, vix porosâ.

Cellulæ sparsæ, subcylindricæ, suprâ concavæ 6-radiatæ, infrâ 6-lamellosæ; lamellis in centro stylifero coadunatis; stylo vix prominente; sulcis aliquibus minoribus inter radios.

The outer coat of the coral is hard and stony, and the centre of its branches is cellular, and formed of six-rayed branching stars. The stars are elongate, tubular, and chambered, like those of *Pocillopora*.

This genus agrees in the number of the plates of the cells, the central style, and the solidity of the coral, with M. de Blainville's

Sideropora, but differs from it in the rays of the stars not being produced. By the latter character, and by the number of its rays, it differs from the genus *Stylaster*, Gray. From *Stylopora*, Schweigg., it differs by the central style of the cells not being exerted, and by the coral being solid instead of porous.

The form of the stars is best seen at the tips of the branches, their mouths becoming in the older parts so contracted as to obscure the central style. When the coral is worn, the style is distinctly visible.

1. ANTHOPORA CUCULLATA. *Anth. corallio solido, ramoso; ramis compressis, subpalmatis, ad apices dilatatis rotundatis compressis; cellularum margine superiore producto, cucullato.* (*Animal viridescens*, Ehr.)

Millepora alcicornis, Forsk.

Millepora digitata, Pall.

Porites scabra, Lam.

Pocillopora Andreogyni, Aud.

Porites digitata, Ehr.

Hab.

The details of this species given by M. Savigny in the fourth Plate of the *Polypes*, forming part of the great work on Egypt, leave little to be desired for its elucidation.

2. ANTHOPORA ELEGANS. *Anth. corallio solido, ramoso; ramis subcylindricis rarissimè subcompressis, attenuatis, ad apices rotundatis; cellularum margine circulari.*

Porites subseriata, Ehr. ?

Mr. Owen read a "Note descriptive of a new species of *Tapeworm*" discovered in the small intestines of the *Flamingo*, *Phœnicopterus ruber*, Linn., and to which he had given the name of *Tænia lamelligera* when he first brought it, in 1832, under the notice of the Committee of Science and Correspondence of the Society (Proceedings, Part II. p. 143). His principal object in again adverting to the subject was to lay before the Meeting a series of drawings which he had prepared of this remarkable *Intestinal Worm*, which bears generally a superficial resemblance to the *Annelidous Nereis lamelligera*, Pall.

Mr. Bell read a paper entitled "Observations on the Genus *Cancer* of Dr. Leach (*Platycarcinos*, Latr.), with Descriptions of three New Species."

He commences by remarking on the subdivisions which the increase of our knowledge has rendered necessary in the genus *Cancer* as established by Linnæus, and by giving his reasons for preferring the appropriation of that name, proposed by Dr. Leach, to the smaller group comprehending the *large edible Crab* of our coast, rather than the assigning to it the appellation of *Platycarcinos*, suggested by Latreille; a name which, in fact, is objectionable, independently of the peculiar fitness of the other, on account of the shells of the animals

of this group not being flat, as would seem to be implied by it. He then characterizes and describes the genus as now restricted: and subsequently characterizes the several species referrible to it, including the one generally known in the markets; a second, which was originally described by Say; and three others, now for the first time noticed, which were obtained by Mr. Cuming on the coast of Chili, and which form part of the Society's Collection, having been presented to it, together with the whole of his *Crustacea*, by that gentleman: the new species are also described in detail. Mr. Bell calls particular attention to the fact, that nearly every one of the structural characters indicated by Dr. Leach in the *common Crab* as specific, are, in reality, generic marks; all the known species agreeing, without exception, in the margin on each side having nine, or more properly ten, divisions (the last being obsolete); in the front being trifid; and in the carapace being granulated.

The characters of the species are as follows:

Genus CANCER, Leach.

1. CANCER LONGIPES. *Canc. testá leviter granulata, sparsim punctata; margine antico-laterali decem-lobato, lobis contiguís, ad marginem minutè denticulatis; manibus lævibus, extùs lineis quinque impresso-punctatis; pedibus longioribus; abdominis articulo ultimo æquilateraliter triangulari.*

Long. $3\frac{1}{2}$; lat. 6 unc.

Hab. apud Valparaiso, *Dom. Cuming.*

Suprà pallidè ruber flavo obsolete punctatus; subtùs flavescens. Chelarum apices nigrescentes.

2. CANCER EDWARDSII. *Canc. testá granulata; margine antico-laterali decem-lobato, lobis latis, contiguís, profundè dentatis; manibus suprà obsolete tuberculoso-carinatis; maris abdominis articulo ultimo anticè producto.*

Long. $5\frac{3}{4}$; lat. $7\frac{1}{2}$ unc.

Hab. apud Valparaiso, *Dom. Cuming.*

Suprà rufescenti-brunneus; subtùs flavus rufescente varius.

3. CANCER DENTATUS. *Canc. testá granuloso-scabrá, hispida; margine antico-laterali decem-dentato, dentibus lanceolatis, denticulatis; manibus tuberculoso-bicarinatis, extùs lineis quinque longitudinalibus granulatis; pedibus pilosissimis.*

Long. 4; lat. $5\frac{1}{2}$ unc.

Hab. apud Valparaiso, *DD. Cuming et Miller.*

Suprà saturatè rufescenti-brunneus flavo (præsertim in junioribus) varius; subtùs rufus flavo varius.

4. CANCER IRRORATUS, Say. *Canc. testá leviter granulata; margine antico-laterali decem-lobato, lobis contiguís, quadratis, ad marginem denticulatis; manibus compressis, dentato-bicristatis.*

Hab. ad oras Floridarum, *Say*, et Americæ Australis, *DD. Cuming et Miller.*

5. **CANCER PAGURUS**, Auct. *Canc. testâ granulâtâ; margine antico-laterali decem-lobato, lobis quadratis, contiguïs, integris; manibus lævibus.*

Hab. ad oras Magnæ Britanniæ et Europæ Occidentalis.

In illustration of Mr. Bell's paper the several *Crabs* described in it were exhibited, and it was stated that drawings of them would be prepared.

Mr. Bell subsequently read a paper "On *Microrhynchus*, a new Genus of *Triangular Crabs*." Its characters are thus given :

MICRORHYNCHUS.

Testa subtriangularis, posticè rotundata, anticè rostro brevissimo terminata.

Oculi pedunculo elongato multo crassiores, retractiles.

Orbita suprâ unifissa, extrorsum unidentata.

Antennæ exteriores ad latera rostri insertæ, articulo basilari rostro vix breviores.

Antennæ interiores in fossulâ integrâ anticè apertâ et ad apicem rostri ferè attinente locatæ.

Pedipalpi externi caulis interni articulo secundo cordiformi, anticè profundè emarginato.

Pedes antici maris corpore vix longiores, reliquis multo crassiores, digitis arcuatis; fœminæ minimi: *pedes octo posteriores* subcon-similes, corpore fere duplo longiores, unguibus leviter curvis.

Abdomen maris 7- fœminæ 5-articulatum (hujus articulis tribus ultimis conjunctis).

Genus *Camposciæ* affine, et verosimiliter *Camposciam* inter et *Inachum* collocandum.

1. **MICRORHYNCHUS GIBBOSUS.** *Micr. testâ gibbosâ; rostro bifido.*
Long. testæ 6; lat. 5 lin.

Hab. ad Insulas Gallapagos dictas.
Flavescenti-albidus.

2. **MICRORHYNCHUS DEPRESSUS.** *Micr. testâ depressâ, granulâtâ; rostro minuto, triangulari, integro.*

Long. testæ 6; lat. itidem 6 lin.

Hab. cum præcedente.

Albidus carneo obsolete tinctus.

The reading of the paper was illustrated by the exhibition of the specimens on which it is founded, and which form part of the same collection with the *Crabs* before referred to. Mr. Bell stated that he regarded it as part of a Descriptive Catalogue of the *Crustacea* of the western coast of South America, on which he is now engaged, and the materials for which will be chiefly furnished by the collection presented to the Society by Mr. Cuming.

June 23, 1835.

Dr. Horsfield in the Chair.

A letter was read, addressed to the Secretary by Keith E. Abbott, Esq., Corr. Memb. Z.S., dated Trebizond, February 14, 1835. It referred principally to a collection of skins of *Mammalia* and *Birds*, and of preserved *Reptiles*, *Fishes*, and *Insects*, formed chiefly in his neighbourhood by the writer, and presented by him to the Society. It also referred to some living animals presented by him at the same time. A portion of the collection was obtained by Mr. Keith Abbott from the vicinity of Erzeroun, to which city he states his intention of proceeding shortly with the view of taking up his residence there for some time.

The collection was exhibited.

Among the *Mammalia* Mr. Bennett pointed out, as apparently hitherto undescribed, a "field Rat", for which he proposed the name of

MUS LATIPES. *Mus caudâ corpore multo longiore ; suprâ plumbeo-niger, subtùs pallidior ; pedibus cinereis.*

Long. corporis cum capite $5\frac{1}{2}$ unc. ; caudæ, 8 ; auriculæ, 8 lin. ; pedis postici cum unguibus, $1\frac{1}{2}$ unc.

He remarked that this new species appears to be most closely allied to the *Mus Alexandrinus*, Geoff., with which it nearly agrees in the comparatively great length of its tail. Its colouring is, however, much darker than that of the species referred to. The hairs over the whole of the body are very long and silky : the short rigid hairs on the tail, as is stated to be the case also in *Mus Alexandrinus*, are comparatively numerous.

The other *Mammalia* comprised a *Shrew*, *Sorex* ; a *Hedgehog*, *Erinaceus* ; a *Marten*, *Mustela Foina*, Linn. ; and a *Badger*, *Meles Taxus*, Storr. The skin of the latter was remarked on as particularly interesting, not only on account of its eastern locality, but also for the softness and length of its comparatively dense fur ; for its greater paleness, depending on the extent of the whitish or fulvous tips of the separate hairs ; for the copiousness of the under soft woolly coat of fur with which the animal is covered at the base of the longer setaceous hairs ; and for the diminished breadth, as compared with ordinary European specimens, of the black marking of the under surface.

A specimen of a *Zorille*, *Mustela Zorilla*, Desm., contained in the collection, is apparently scarcely different, notwithstanding the great difference of locality, from an individual obtained, by the kindness of Sir Thomas Reade, from Northern Africa. Respecting this animal Mr. Keith Abbott states, "It is called, in Turkish, *Gheurjen*."

I had intended sending it to you alive, but it died a few days ago. It was sent to me from the neighbourhood of Erzeroun : I am not aware of there being any in this immediate neighbourhood. It was of a particularly savage nature, and although I had kept it for several months, I was never able to tame it in the least : it would bite whenever it could."

"I send you likewise," he adds, "a little *Marmot* alive in a small cage. It came from Erzeroun, in the neighbourhood of which, I understand, there are vast numbers." It is apparently very nearly allied to *Citillus concolor*, *Arctomys concolor*, Temm., but may probably, Mr. Bennett remarked, be specifically distinct. It may be characterized as follows :

CITILLUS XANTHOPRYMNA. *Cit. brunneo-grisescens flavo irroratus, subtus albescens ; prymna caudique rufescenti-flavidis, hinc rotundata, brevi, pilosissima ; pedibus lineaque oculum cingente albis ; auriculis inconspicuis.*

Long. corporis circiter 7 unc. ; caudæ, 2.

The *Birds* of the collection were brought under the notice of the Meeting, at the request of the Chairman, by Mr. Gould. He observed on each of them as regarded its geographical distribution, considering the exhibition as a continuation of those of June 24 and November 25, 1834. (Proceedings, Part II. pp. 50 and 133.) The following species, exhibited on the present occasion, were not comprised in either of the former collections : and the total number is thereby raised to sixty-seven species obtained in the neighbourhood of Trebizond, a locality which is particularly interesting on account of its intermediate position between Western Europe and India.

Alcedo Ispida, Linn. Inhabiting Europe generally, but not seen by Mr. Gould in collections from India or Africa.

Turdus musicus, Linn. Not previously observed out of Europe.

Curruca atricapilla, Bechst. Inhabiting Europe generally, but not met with in Indian collections.

Curruca cinerea, Bechst. Similarly circumstanced with the last.

Sylvia Trochilus, Lath. Inhabiting Europe generally, and the western portions of India.

Regulus cristatus, Cuv. Mr. Gould had not previously seen this bird, except in European collections.

Motacilla melanocephala. This is considered by some ornithologists as a variety of the *Mot. flava* of continental writers. It is never found in the western or northern parts of Europe.

Anthus pratensis, Bechst. Common throughout the whole of Europe, and tolerably so in the western parts of India.

Phenicura Suecica, Jard. & Selb. Inhabits Europe and India. Only two specimens of it have been taken in England.

Querquedula Crecca, Steph. Dispersed over the whole of Europe, India, and the northern regions of Africa ; but not found in America.

Colymbus Arcticus, Linn. Inhabits the whole northern hemisphere. The Trebizond specimen is young.

Larus canus, Linn. Inhabiting Europe generally.

Larus fuscus, Linn. Inhabiting the European and American seas.

Larus ridibundus, Linn. Inhabiting the whole of Europe, India, and North America.

The *Fishes* forwarded by Mr. Keith Abbott are all from the salt water. They include twenty species. Respecting them he writes: "Had I received your letter sooner I might have collected a great many more fishes, but the season was gone by. There is no fish-market in this place, and the people are by no means expert in the art of catching them. The only kind of fish caught in any quantity just now is the *Anchovy*, of which there are two specimens in the jar of spirits: these are taken in astonishing quantities. The *Herring*, *Mackarel*, and *Mullet* (*red and grey*), are very abundant in this sea; as likewise the *Turbot*, of which I send a specimen. *Salmon* and *Sturgeon* are likewise occasionally caught here."

In bringing these *Fishes* under the notice of the Society, Mr. Bennett remarked that there were among them several which required a more careful comparison with Mediterranean species than he had been, at present, enabled to give to them; but that the following appeared to him to be distinct from any which had hitherto been described.

TRIGLA PAUCIRADIATA. *Trigla pinnâ priore dorsali sex-radiatâ; sulco dorsali fortiter armato: pinnis pectoralibus magnis, internè cæruleis, fasciis undulatis apicem versus maculâque infra medium saturatioribus, hâc albo guttulatâ.*

D. 6, 16. A. 15.

Long. tot. $10\frac{1}{2}$ unc.; *capitis*, $2\frac{1}{2}$; *capitis alt.* $1\frac{1}{3}$; *cranii lat.* 1.

Caput leniter declive: ossa suborbitalia anticè vix prominentia, dentibus tuberculisve parvis 4—5 munita.

DENTEX RIVULATUS. *Dent. ovali-oblongus; capite leniter proclivi; oculo majusculo: suprâ aureus, maculis præsertim ad lineam lateralem nigrescentibus, vittis laterum argenteis flexuosis hinc et hinc cancellatis.*

D. 11+11. A. 3+9. P. 15.

Long. tot. $6\frac{1}{2}$ unc.; alt. max. $1\frac{1}{2}$.

A *Dent. macrophthalmo*, Cuv. et Val., differre videtur corpore magis elongato, capite vix tumido, oculo minore, pinnâ pectorali in medio magis elongato subrotundato, caudali magis bifurcâ; necnon coloribus picturâque, quâ *Scolopsidem cancellatum*, Benn., quodammodo simulat. Maxillæ inferioris, æquè ac superioris, dentes antichi quatuor majores.

GOBIIUS SORDIDUS. *Gob. pinnâ dorsali secundâ priore altiore; caudali pectoralique rotundatis: corpore vario; pinnis maculatis, anali ventralibusque nigro (illâ latè) marginatis.*

D. 6, 1+17. C. 13. A. 13. P. 17.

CRENILABRUS FRÆNATUS. *Cren. ovatus, guttatus punctatusque, fasciis quatuor nigrescentibus maxillam inferiorem cingentibus: pinnâ caudali rotundatâ.*

D. 14+10. A. 3+9.

Long. tot. $4\frac{1}{2}$ unc. ; alt. corp. $1\frac{1}{2}$.

Totus, præter pinnis pectoralibus ventralibusque, varius; sed maculis insignibus nullis notatus. Dentes subæquales, commissuram versùs gradatim decrescentes.

ALOSA IMMACULATA. *Al. maxillis dentiferis, immaculatus; pinnis ventralibus dorsalis initio paullò posterioribus.*

D. 17. A. 18.

Long. tot. $10\frac{1}{2}$ unc. ; alt. max. $2\frac{1}{2}$; long. capitis $2\frac{1}{2}$; a rostro ad lineam initii pinnæ dorsalis, $4\frac{1}{2}$.

RHOMBUS STELLOSUS. *Rhomb. subrotundus, utrinque tuberculoso-muricatus; oculis subdistantibus, intervallo vix convexiusculo; maxillâ superiore vix uncd armata.*

Long. (pinnis exclusis) $7\frac{1}{2}$ unc. ; lat. 5.

A latere sinistro squamis parvis adhærentibus vestitus; tuberculisque osseis, magnis, acutiusculis, ad basin scabroso-dilatatis, sparsis, vix numerosis armatus: a latere dextro tuberculis itidem osseis, minoribus, acutiusculis, basin versus cute vaginatis, subnumerosis donatus. Capitis tubercula a latere dextro pauca, minima; a latere sinistro numerosa, majora, præsertim ad genam; inter oculos conferta. Pinna pectoralis rotundata, 12-radiata: caudalis etiam rotundata. Linea lateralis ad initium latè curva, dein recta. Os quadrato-prominulum.

Corpus e latere sinistro unicolor, nigrescens? Pinnæ fusæ, hinc et hinc hyalescentes, nigrescente guttatae et punctatae.

SYNGNATHUS TYPHLOIDES. *Syngn. pinnis omnibus præditus; corpore heptagono; capite compresso, elongato, suprâ plano; ano in medio.*

Long. tot. $8\frac{1}{2}$ unc. ; capitis, $1\frac{1}{2}$.

A *Syngn. Typhle*, Linn., differt situ ani, longitudine capitis, præsertim ante oculos, numeroque radiorum et scutorum.

	Syngnathus	
	Typhle.	Typhloides.
Long. a rostro ad humerum	1·4	1·75
ab humero ad anum	2·2	2·6
ab ano ad pinnam caudalem . .	4·3	3·9
capitis ante orbitam	·77	1·1
Alt. rostri minima	·15	·15
Scuta ante anum	17	17
post anum	36	33
Radii pinnæ dorsalis	43	35

In addition to the collections already referred to, Mr. Keith Abbott presented at the same time to the Society a "cock and two hens of the *Fowls* of Herat in Khorassaun, a breed which is," he believes, "unknown in Europe. They are young birds of the real Herat race." These, it was stated, are apparently identical with the *Kulm Fowl* of Dukhun and the *Malay Fowl*, the *Gallus giganteus*, Temm.

A large collection of skins of *Birds* formed at Travancore by P.

Poole, Esq., and presented by him to the Society, was exhibited. Mr. Gould, in bringing it, at the request of the Chairman, under the notice of the Society, remarked upon it as distinguished from all the collections which he had hitherto seen from India, by its possessing not even one European species, and only three or four which occur in Africa; a peculiarity probably attributable to its having been obtained in so southern a locality. He subsequently called the attention of the Meeting to each species contained in the collection, and pointed out among them several which he regarded as being hitherto undescribed.

A large drawing made in Madeira by Miss Young of the *Fish* described by the Rev. R. T. Lowe, in the Second Part of the 'Transactions' (page 123), under the name of *Alepisaurus ferox*, was exhibited. It was taken from a perfect specimen, and consequently showed the correct form of the caudal fin, a part which was mutilated in the individual originally described: its form is very remarkable, the upper lobe being greatly prolonged and falciform. The drawing also showed correctly the form of the outline of the high dorsal fin, which differs from that originally represented.

The exhibition was in illustration of a Paper entitled "Additional Observations on *Alepisaurus*: by the Rev. R. T. Lowe, Corr. Memb. Z.S."

The exhibition was resumed of the undescribed *Shells* contained in Mr. Cuming's collection. Those brought on the present occasion under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby and by Mr. W. Lytellton Powys. They comprised the following species.

GENUS PANDORA.

PANDORA BREVIFRONS, Sow., Species Conchyliorum, Part II. Tab. Pand. secund. figg. 25, 26. *Pand. testá elongatá, tenuissimá, hyalíná, albá; latere antico brevioré, rotundato, supernè subangulato; latere postico longioré, rostrato, subtruncato; margine dorsali recto, ventrali rotundato; dente in valvá planulatá unico, minimo: long. 0·9, lat. 0·15, alt. 0·35 poll.*

Hab. apud Panamam.

Obtained from a sandy bottom, at the depth of ten fathoms.—G. B. S.

PANDORA ARCUATA, Sow., Ibid., figg. 27, 28. *Pand. testá ovatá, crassiusculá, opacá, margaritacéá; latere antico brevioré, rotundato, postico rostrato; margine dorsali arcuato, ventrali rotundato; lined impressá obsoletá ex umbone ad marginem ventralem decurrente: long. 1·, alt. 0·6 poll.*

Hab. apud Sanctam Elenam.

Found on the sands.—G. B. S.

PANDORA DISCORS, Sow., Ibid., figg. 29, 30. *Pand. testá ellipticá, depressá, albicante, opacá; latere antico brevioré, postico altioré; margine dorsali postico subarcuato, antico rotundato, ven-*

trali rotundato posticè ventricoso ; valvâ sinistrâ posticè radiatim lineatâ, carinâ prope marginem dorsalem posticum conspicuâ : long. 0.55, lat. 0.06, alt. 0.4 poll.

Hab.

PANDORA CEYLANICA, Sow., Ibid., figg. 20—22. *Pand. testâ elongatâ, depressâ, subflexuosâ, posticè rostratâ, margine superiore postico arcuato recurvo, anticè dilatâ ; dentibus duobus validis et laminâ marginali in valvâ planulatâ, dente unico fornicato in alterâ : long. 1.1, lat. 0.1, alt. 0.6 poll.*

Hab. in Mari Ceylanico, et apud Insulam Muerte, Colombiæ Occidentalis.

Mr. Cuming has a single specimen obtained, at the latter locality, from a depth of eleven fathoms.—G. B. S.

PANDORA RADIATA, Sow., Ibid., figg. 23, 24. *Pand. testâ ovatâ, depressiusculâ, albâ, margine superiore postico recto ; latere postico longiore, subtruncato ; margine ventrali rotundato ; latere antico parvo ; valvâ planulatâ radiatim rufo-lineatâ : long. 0.6, lat. 0.15, alt. 0.35 poll.*

Hab. apud Insulam Muerte, Colombiæ Occidentalis.

Dredged from sandy mud, at the depth of eleven fathoms.—G. B. S.

Genus BUCCINUM.

BUCCINUM MODESTUM. *Bucc. testâ ovato-fusififormi, albidâ aut luteo-rufescente, strigis longitudinalibus confluentibus rubro-castaneis ornatâ, anfractu ultimo albo fasciato, basi sulcato ; anfractibus 8, spiraliter striatis et supernè lineis impressis bicingulatis ; aperturâ elongatâ ; labio externo varicoso, intùs leviter striato : long. 1.15, lat. 0.5 poll.*

Hab. ad oras Americæ Centralis.

Dredged from muddy gravel in the Bay of Montija, at a depth varying from seven to seventeen fathoms.—W. L. P.

BUCCINUM CUMINGII. *Bucc. testâ ovato-elongatâ, subturritâ, tenui, rufo-stramineâ, maculis parvis saturatoribus striisque albidis elevatiusculis transversis ornatâ ; anfractibus 7—8, longitudinaliter costatis, costis anfractûs penultimi evanescentibus, ultimi nonnullis ; columellâ subrectâ, infernè spiraliter plicatâ ; labio externo tenui, intùs lævi : long. 1.25, lat. 0.5 poll.*

Hab. ad littora insularum Oceani Pacifici.

A single specimen of this very elegant and delicate species was collected by Mr. Cuming on the sands at Grimwood's Isle.—W. L. P.

BUCCINUM CATENATUM. *Bucc. testâ ovato-oblongâ, tenui, roseo-albicante, spiraliter tenuissimè striatâ, basi sulcatâ ; anfractibus 6—7, convexis, superioribus longitudinaliter costatis, tribus ultimis maculis parvulis nivosis per series transversas dispositis ; aperturâ lævi, nitidâ ; labio externo subcrenulato : long. 0.75, lat. 0.3 poll.*

Hab.

I have only seen one specimen of this interesting species, which I have reason to believe was brought from the Mauritius.—W. L. P.

BUCCINUM SUCCINCTUM. *Bucc. testá ovato-pyramidalí, tenui, spiraliter costatá, inter costas tenuissimè striatá, lacteá; anfractibus 7—8, convexis, ultimo spirá víx majore; aperturá ovali; columellá flexuosá; labio externo intùs sulcato: long. 0·75, lat. 0·3 poll.*

Hab. ad littora Insulæ Mauritii.—W. L. P.

Genus NASSA.

NASSA NODIFERA. *Nassa testá ovato-acuminatá, subturritá, albescente, longitudinaliter costatá, et spiraliter impresso-striatá; anfractibus supernè angulatis, costis ad angulum nodoso-tuberculatis; aperturá albá, nitidá; labio externo intùs leviter striato: long. 0·65, lat. 0·35 poll.*

Hab. ad Insulas Gallapagos et ad littora Panamáë.

Found in coral sand in from six to ten fathoms.—W. L. P.

NASSA CONCINNA. *Nassa testá ovato-conicá, peracutá, pallidè fulvá fasciis saturatoribus cinctá, longitudinaliter creberrimè undatim plicatá, striis impressis contiguís eleganter decussatá; anfractibus 8—9, rotundatis, ad suturas granulis moniliformibus ornatis; aperturá ovali; columellá subrugosá; labio extùs marginato, intùs sulcato: long. 0·8, lat. 0·4 poll.*

Hab. in Polynesiá. (Toobouai.)

Collected on the reefs.—W. L. P.

NASSA DENTIFERA. *Nassa testá ovatá, subventricosá, olivacé, anfractu ultimo fasciá pallidiore cinctá, longitudinaliter granoso-plicatá, decussatá; aperturá fusco-violacé; labio externo sinuoso, incrassato, basin versus denticulo unico instructo, intùs leviter sulcato: long. 0·85, lat. 0·45 poll.*

Hab. ad oras Americæ Meridionalis.

Dredged in the Bay of Arica, in ten fathoms, from a muddy bottom.—W. L. P.

NASSA FESTIVA. *Nassa testá ovato-globosá, cærulescente, punctis variis et anticè lineis contiguís rubro-castaneis pictá; anfractibus 8, longitudinaliter costatis et spiraliter sulcatis, ultimo ventricosó, spirá peracutá longiore; aperturá albá, rotundatá; columellá granoso-plicatá; labio externo crasso, variciformi, intùs valdè sulcato: long. 0·85, lat. 0·6 poll.*

Hab. ad Panamam et ad Sanctam Elenam.

Dredged from sandy mud at a depth varying from six to ten fathoms.—W. L. P.

NASSA EXILIS. *Nassa testá ovato-conicá, basi subcompressá, olivacé obscurè fasciatá; anfractibus 7—8, convexis, spiraliter obsolete striatis, suturis granulis moniliformibus infrà in costellas decurrentibus ornatis, costellis et striis anfractús ultimi evanescentibus;*

aperturá violaced; labio externo incrassato, intùs subsulcato; long. 0·65, lat. 0·3 poll.

Hab. sub lapidibus ad Paytam, Peruviae.

The anterior part of the last volution, towards the lip, is smooth and free from ribs.—W. L. P.

NASSA PALLIDA. *Nassa testá ovato-conicá, sordidè albá, canali fusco maculatá; anfractibus 8—9, supernè subangulatis, longitudinaliter obliquè costatis, spiraliter sulcatis et rugoso-striatis; labio externo intùs striato; columellá arcuatá, callosá: long. 1·2, lat. 0·65 poll.*

Hab. ad Panamam.

The ribs are not continued over the anterior part of the last volution towards the lip.

Dredged from sandy mud at a depth of six fathoms.—W. L. P.

NASSA SCABRIUSCULA. *Nassa testá ovato-conicá, acuminatá, fuscá luteo fasciatá, longitudinaliter plicatá, striis elevatis asperis spiraliter cancellatá; aperturá rotundatá; labio externo albo, anticè fusco maculato, extùs marginato, intùs valdè sulcato: long. 0·47, lat. 0·27 poll.*

Hab. ad oras Americae Centralis.

Dredged in sandy mud at a depth of twelve fathoms in the Bay of Montija.—W. L. P.

NASSA COMPLANATA. *Nassa testá ovatá, complanatá, olivaced fasciis luteis cinctá; anfractibus superioribus utrinque granosis, ultimo varicibus lateralibus et plicis graniferis dorso evanescentibus; aperturá ovali; labio externo marginato, intùs sulcato: long. 0·35, lat. 0·22 poll.*

Hab. ad oras Colombiae Occidentalis.

Found at Atacamas, under stones.—W. L. P.

GENUS PURPURA.

PURPURA TÆNIATA. *Purp. testá obovato-oblongá, transversim tenuissimè striatá, rufo-castaned fasciis fulvo-luteis cinctá; spirá brevissimá; anfractu ultimo permagno; aperturá elongatá, subæquali, intùs lacted, peritremate castaneo lineis albidis radiato; columellá planá, pallidè castaned; labio externo intùs denticulato: long. 0·9, lat. 0·62 poll.*

Hab. in Oceano Pacifico. (Maldon Island.)

I am not aware of this interesting shell having been hitherto described. It bears a considerable resemblance to the *Purp. Vexillum* of Lamarck; but differs from that species in having a much shorter spire, in its very flat *columella*, and in the outer lip being more expanded and radiated. The bands also afford a ready mark of distinction: in *Purp. Vexillum* they are of a reddish brown on a lighter ground; whilst in *Purp. tæniata* the ground colour is dark chestnut, and the bands yellow.—W. L. P.

July 14, 1835.

William Yarrell, Esq., in the Chair.

Mr. Ogilby exhibited several rare and undescribed species of *Mammalia* and *Birds*, brought from the Gambia, on which he made the following observations :

“ Through the kindness of Mr. Rendall, who has lately arrived from the Gambia, where his brother is lieutenant-governor of Fort St. Mary and the other British possessions in that neighbourhood, I am enabled to present the Society with the following account of a few new or rare species of *Mammals* and *Birds*; forming, however, but a very small portion of the valuable collection which Mr. Rendall has brought home with him. The collection, it is true, contains very few *Mammals*; these, however, are either altogether new to science or of very rare occurrence, and show how little we know of the zoology of the west coast of Africa.

Genus COLOBUS, *Ill.*

Colobus fuliginosus. This new and interesting species of a very obscure and imperfectly known genus, measures 2 feet 5 inches from the upper lip to the extremity of the tail, which organ is itself 2 feet 8 inches long. All the upper parts of the body are of a light smoky blue colour, very similar to that of the common *Mangabey*, (*Cercopithecus fuliginosus*, Geoff.), rather darker on the shoulders than elsewhere, and copiously tinged with red on the *occiput*: the colour of the back descends some way down on the external face of the fore arms and thighs, and also a short distance, but more obscurely, on the upper surface of the tail. With these exceptions, all the rest of the extremities, the arms, fore arms, thighs, legs, hands, feet and tail, are of a uniform light or brick red, and a more intense shade of the same colour extends up the fore part of the shoulders, and spreads over the breast, throat and whiskers, which latter are long, directed downwards on the cheeks, and backwards into long pointed tufts behind the ears, which are small, round, naked, and furnished with a distinct *helix*, in all respects like that of the human subject. The belly and flanks are of a dirty yellowish white, and a circle of black stiff hair passes over the eyes. The face, palms of the hands and soles of the feet are naked and of a violet colour; the callosities are of moderate size; the thumbs of the anterior extremities are wanting, but their situation is marked by a small nailless tubercle; the middle and ring fingers, both on the fore and hind hands, are of equal length, as are likewise the index and little fingers; and it is to be observed,

that the latter are united to the contiguous middle or ring fingers, respectively, through the greater part of the first *phalanx*, as in the *Siamang*, *Pithecus syndactylus*, F. Cuv. The face is short, the head round, and the whole form and habit of the animal similar to those of the *Semnopithecus*. The teeth are of the usual form and number, and there are large and very distinct cheek pouches. I was the more particular in making this last observation, because the organs in question had not been previously recorded as existing in the *Colobi*, and because M. Geoffroy St. Hilaire in his valuable lectures, of which it is a matter of great regret that so small a portion has been given to the public, even doubts their existence. Of this, however, there can be no longer any reasonable doubt; they are extremely apparent and rather capacious in the specimen now under description. The teeth of this specimen, a very old female, without even excepting the canines, which do not appear to have been remarkably large at any time, are worn almost down to the gums. Mr. Rendall possesses a second and younger specimen which, however, differs in no respect from that just described.

The arrival of these skins, probably the only perfect specimens of the genus *Colobus* in Europe, with the exception of that in the Leyden Museum, and of the specimens recently brought from Abyssinia by Dr. Rüppell, naturally led me to refer to the imperfect skins noticed by Mr. Bennett in the 'Proceedings of the Committee of Science and Correspondence' of this Society for 1832, page 122, and to examine generally the characters of the different species already described. The result of my investigation into this subject leads me to conclude that we at present possess sufficient indications of six distinct species of *Colobi*, which may be characterized as follows:

1. *Col. polycomos*, Schreb., "with the head and shoulders covered with long, coarse, flowing hair, of a dirty yellowish colour, mixed with black; body, arms and legs of a fine glossy blackness, covered with short hair; tail of a snowy whiteness, with very long hair at the end forming a tuft."

2. *Col. Ursinus*, with very long glossy black hair over the whole body and extremities, and a long snowy white tail slightly tufted at the end: described from two imperfect skins, without head or hands, the same as those noticed by Mr. Bennett in the 'Proceedings' for 1832. Mr. Bennett considered these skins as referrible to the *Col. polycomos*; and the general colour of the body and tail, as well as a slight appearance of grizzled or gray hair about the neck, where the head has been cut off, in both the specimens, would at first sight appear to justify his views; but the words of Pennant, (the only original describer of the species,) as quoted above, imply that the "long dirty yellowish hair," which he compares to a full-bottomed periwig, grows from the shoulders and neck as well as the head, and expressly declare that the hair on the rest of the body, as well as on the legs, is short. Now in the specimens at present under consideration the very reverse of this is observable. The black hair of the

shoulders, as already observed, has a partial mixture of silvery white on the anterior face just where the head has been cut off; but it is not longer than the hair upon the rest of the body and limbs, which is moreover 5 or 6 inches in length, and in texture and appearance is more unlike that of the *Ursus labiatus*. The whole animal in fact resembles a small *Bear*, and is covered with the same uniform, long, black, and glossy fur upon every part except the tail, which, at the root more particularly, is furnished with much shorter hair. Whether or not this species, like the *polycomos*, has the head of a different colour from the body, is a subject for further observation: the white or silvery hairs already mentioned as still remaining about the shoulders, render it extremely probable that it has, but in no case can it form the striking contrast in length, nor present the long flowing mane or wig-like appearance ascribed to the animal observed by Pennant. Mr. Gould, who procured these skins for the Society, reported them as coming from Algoa Bay; we know enough of the zoology of that part of Africa, to render this account extremely doubtful, and the probability is, either that Mr. Gould was misinformed, or that he may have mistaken Delagoa Bay for Algoa, which, from the similarity of sound, might readily happen. If this conjecture should prove correct, it would follow that the *Col. Ursinus* was the analogue of the *Col. polycomos* on the opposite coast, and the conjecture receives further countenance from the fact of many other known species of *Mammals* having such analogues in the same localities.

3. *Col. Guereza*, Rüpp., with the head, face, neck, back, limbs, and basal half of the tail, covered with short black hair; the temples, chin, throat, and a band over the eyes, white; the sides, flanks from the shoulder downwards, loins and buttocks, clothed with long flowing white, which hangs down on each side like a loose garment; the tip of the tail furnished with a tuft of dirty white. Described and figured by Dr. Rüppell in his 'Neue Wirbelthiere.'

4. *Col. ferruginosus*, Geoff., "with a black crown; back of a deep bay colour; outside of the limbs black; cheeks, under part of the body, and legs of a very bright bay; tail black." This species, originally thus described by Pennant, was, like the *Col. polycomos*, brought from Sierra Leone.

5. *Col. fuliginosus*. Smoky blue above, dirty yellowish gray beneath; with the cheeks, throat, tail and extremities brick red. Brought from the Gambia.

6. *Col. Temminckii*, Kuhl, "with the hands, face, and tail, purplish red; rest of the members, clear red; belly, reddish yellow; head, neck, back, shoulders and outer face of the thighs, black." Habitat unknown: described from a specimen formerly in Bullock's Museum and now in that of Leyden. Notwithstanding some slight discrepancies, I agree with Mr. Bennett in referring to this species the two other skins of the Society's Collection, noticed by him in the Part of the 'Proceedings' already referred to. These skins

were procured at the same time, and most probably in the same locality, as those of the *Col. Ursinus*. They are equally imperfect; the hair of the shoulders and back, dead black, and without the beautiful gloss of the *Col. Ursinus*; on the flanks and over every part of the limbs the colour is a uniform maroon or clear purple red; the head and hands are wanting, but the maroon of the tail is much deeper than that of the legs and flanks, approaching almost to black, and, in the older of the two specimens, actually replaced by that colour on the terminal half of the tail. If the conjecture already thrown out with regard to the derivation of these skins should turn out to be well founded, and if the animal here described eventually proves to be identical in species with the *Col. Temminckii*, of which I see no just reason to doubt, it follows that the hitherto unascertained habitat of that species must be sought on the east coast of Africa. Fischer, probably induced to it by the authority of M. Temminck, has united the *Col. Temminckii* with the *Col. ferruginosus* or *bay Monkey* of Pennant; the short descriptive characters above given in the words of their original describers, leave no doubt as to the specific distinction of these two animals; in which, indeed, though the colours are the same in both, their distribution is reversed, the bay or red of the one occupying the same situation as the black of the other.

GENUS PTEROPUS.

Two undescribed *Pteropi*, brought over by Mr. Rendall, present some modifications of dentition which have not been observed in other species, and which appear to indicate a subgenus, probably representing the common Asiatic forms on this coast of Africa. These animals have the incisors and canines of the same form and number as the rest of the genus, but there are only three *molares* in the upper and five in the lower jaw. The incisors are small and regular, the canines of intermediate size; the first false molar in the lower jaw is small and of the normal form, but the second in this jaw and the first in the upper are of the same form as the canines, and very little inferior to them in size, so that when the mouth is opened there appear to be four canines in each jaw; next follows in either jaw a tooth with a large fang upon the outer edge and a smaller one within, which is of intermediate form between the true and false molars; after which come two normal molars in the lower and one in the upper jaw. All the molars are separated from one another by a vacant space on each side; this gap is particularly large between the real and spurious canines or first false molars in the upper jaw, the corresponding space in the lower having, in its centre, the small false molar already mentioned.

Pteropus Gambianus.

Length from the nose to the centre between the thighs $6\frac{3}{4}$ in.

Length of the head from the nose to the root of the ear. . $1\frac{3}{4}$

Expanse of the wings 1 f. 8 in.

The fur is of a very soft woolly texture, and of a uniform reddish mouse colour over every part, only rather lighter on the sides of the neck and belly than on the superior surface of the body. The wings are ample, naked except upon the thighs and arms, and of a light brown colour; there is no real interfemoral membrane; but the whole posterior face of the thighs and body is margined with a narrow band of integument about half an inch broad, and covered above with the same description of hair as the back. The ears are small, naked, erect and elliptical, and the eyes placed much nearer to them, and consequently at a greater comparative distance from the muzzle, than in the ordinary *Pteropi*.

Pteropus macrocephalus. The whole length of this species is barely 6 inches, the length of the head 2 inches, and the expanse of the wings about 1 foot 3 inches. The colour, form and appearance are much the same as in the last species, but the *Pter. macrocephalus* is at once distinguished by the great size of the head, as well as by the colour of the flying membranes which are very dark brown, nearly approaching to black. The canine teeth also, as well as the head, are of much larger size, and the interfemoral margin is narrower. Dr. Horsfield, from the great length of the head, thinks that this species may approximate to the *Macroglossus* of M. F. Cuvier, the *Pter. rostratus* of his own 'Zoological Researches in Java.' It is to be observed, however, that it differs in dentition from that animal, as well as from all other *Pteropi* hitherto described; and, with the *Pter. Gambianus*, may furnish the type of a new genus to those who regard such modifications as amounting to generic characters. Mr. Rendall's collection contains numerous specimens of both the species here described.

The only other *Cheiropter* brought home by Mr. Rendall is the *Megaderma Frons* of Geoffroy, well described by Daubenton; to whose account I shall only add, that the wings are of a deep orange colour, and the fur unusually long and soft.

GENUS HERPESTES, III.

Mr. Rendall has brought over specimens of two *Herpestes*, one of which, the *Herpestes Mongos* of Linnæus, very well figured and described by Buffon (Hist. Nat., tom. xiii. tab. 19.), deserves to be noticed, for the purpose of correcting the habitat of the species, which, upon Buffon's authority, has hitherto been given as India, but which Mr. Rendall's specimens clearly show to be the west coast of Africa. The mistake originally arose from Buffon's having identified the *Mangouste à bandes*, the species at present under consideration, with the *Mongos* of Kæmpfer, unquestionably an Indian species (the *Herpestes griseus* of authors), and still commonly called by that name in Upper India, where many natives and Europeans keep it in a semidomestic state, for the purpose of destroying vermin. Under these circumstances, though there are few cases in which

such a change is advisable, or even excusable, perhaps it would be better to follow the example of M. Desmarest in the 'Dictionnaire des Sciences Naturelles,' and substitute the specific name of *fasciatus* for that of *Mungos*, as regards this animal, reserving the latter name for the species to which it really belongs, and which is at present designated by the very vague term of *griseus*.

The other species brought by Mr. Rendall, and which I propose to call *Herpestes Gambianus*, is new to science, but is in some degree allied to the *Herp. vitticollis*, characterized by Mr. Bennett at a recent meeting of the Society (page 66). It is, however, much smaller than that species, measuring only 17 inches from the nose to the root of the tail, whilst the *Herp. vitticollis* measures fully 23; the tail also measures 13 inches in the latter animal, and only 9½ in the former. The general colour of the body is that grizzled gray and brown, so common among the *Herpestes*, upon the upper parts, clearer upon the head, neck and shoulders, and copiously mixed with red upon the latter part of the back, hips and thighs, particularly upon the latter, which are nearly all red; the tail has a copious mixture of black, and is terminated by a small tuft of pure black; but this is only found at the extreme point, and does not extend over a considerable portion of the organ, as in *Herp. vitticollis*. The throat and sides of the neck are pale silvery brown; the breast, belly, and interior of the limbs, red; the feet alone, not the whole legs as in *Herp. vitticollis*, are black, and a stripe of dark brown extends from the ear to the shoulder, along each side of the neck. The hair lies smooth and close to the skin.

There are some peculiarities in the dentary system of these animals which are deserving of notice.

Herp. fasciatus and *Herp. Gambianus*. Teeth $\frac{6}{6} : \frac{1-1}{1-1} : \frac{5-5}{5-5}$. The incisors small, simple, and regular; the canines of moderate size; the first two false molars of the normal form; the third, carnassier, of rather small size compared with its analogue in genera more decidedly carnivorous, and the last two, in both jaws, tuberculous. The rudimentary false molar, mentioned by M. F. Cuvier, is wanting in both these species; nor can its absence be owing to the age of the specimens examined, as some were evidently young animals, though arrived at adult age. Its entire absence is further confirmed by the situation of the teeth respectively, in the reciprocal position of the jaws, the first inferior false molar filling up the entire vacant space between the corresponding superior tooth and the canine of the same jaw.

This system differs considerably from that ascribed to the *Herpestes* by M. F. Cuvier (Dents des Mammifères, i. 99.), but agrees in all respects with the description of M. Desmarest. The following, however, is equally foreign to the accounts of both these authors, and, were not all the other characters so perfectly accordant with those of *Herpestes*, would decidedly indicate a new genus. Indeed, it so stands

in my notes, under the name of *Mungos*, but with a note of interrogation, as I have only been able to examine a single specimen.

Mungos? *vitticollis*. (*Herpestes vitticollis*, Benn.) Teeth $\frac{6}{6}$:
 $\frac{1-1}{1-1}$: $\frac{6-6}{7-7}$. The incisors and canines have nothing remarkable either in form or number. The first false molar in either jaw is tuberculous; the second and third consist of one large conical fang in the centre, and a smaller tubercle on each side of it; then follows the carnassier, and after it two tuberculous teeth in the upper and three in the lower jaw. The first of these in the upper jaw is large and triangular; the second, short and broad, its latitudinal dimensions more than doubling its longitudinal; the three of the lower jaw are small, simple, rather distant from each other, and of cylindrical form.

This is a system of dentition which, as far as I am aware, is altogether peculiar, and if confirmed by the examination of other specimens, will undoubtedly form the type of a new genus. Perhaps further and more rigid examination may even detect different species from the different localities, as specimens have arrived for the Society from Travancore and Bombay, and one from Madras, at the British Museum.

Genus SCIURUS, Linn.

Sciurus Gambianus. This animal belongs to that subgenus of *Squirrels* which are distinguished by having round untufted ears and long cylindrical tails, covered with short hair, and not distichated. The upper surface of the body and root of the tail are uniform mouse-coloured brown, with a slight shade of yellowish red, and everywhere pointed thickly with gray, from the hairs being separately annulated with black and yellowish white; all the under parts are uniform dirty white. The tail is long, covered with short hair, towards the root of the same uniform colour as the back, but annulated or fasciated from thence to the tip with numerous alternate bands of black and light grayish brown, precisely like those which mark the back of the *Ryzæna* and the *Herpestes fasciatus*. The whole length of the animal is about $9\frac{1}{4}$ inches, and the tail about the same. The ears are very short and rounded.

From Dr. Smith's description of his *Sci. Pocnsis*, I imagine it must approach this species in form, but is distinguished by its smaller size, different colour, and unannulated tail.

Of the numerous *Bird-skins* in Mr. Rendall's collection I shall only notice the two following, which appear to be new species, and which derive an additional interest from their generic affinities. The first I propose to call, out of compliment to the gentleman to whose kindness we are indebted for the present exhibition and description,

Numida Rendallii. This beautiful species, which Mr. Gould agrees with me in considering new to science, is of smaller size than the

common *Guinea Fowl*, and in this resembles the *Num. cristata*. The head and upper part of the neck are bare, the former covered with a wrinkled scalp-like skin, gathered into a small keel-shaped ridge in the centre, about half an inch in length, and not more than a quarter of an inch high. The neck is black, naked principally on the throat and sides, and covered on the back with glossy black hair, or rather small feathers, with the beards so fine as to be perceptible only upon close examination. The lower part of the neck and breast are covered with feathers of a beautiful violet colour without spots, clearest on the breast, but with a browner hue upon the upper surface. The back, shoulders, and rump are of the usual brown colour, speckled thickly with minute white spots, each surrounded with an intensely black ring, much smaller and more numerous than in the common species, and intermixed with an infinity of still more minute white points. The greater coverts of the wings and whole under surface of the body are black, with large white spots; the quill feathers spotted towards the shaft, and barred transversely on the lower margin only, and the tail feathers light gray, with white spots in a black ring, and interspersed with numerous black dots or points. The white spots of the coverts, quills, and belly, are not surrounded by black rings like those of the back and tail. This appears to be the common species on the banks of the Gambia.

Genus GYPOGERANUS, III.

A *Secretary* in Mr. Rendall's Collection offers some peculiarities, when compared with the common Cape animal, which at first induced me to believe that it might be a distinct species, and in this opinion I was in some manner confirmed by the more experienced and concurrent belief of Mr. Gould; but I confess that a more attentive comparison of specimens from both localities has considerably shaken my original opinion. I may remark, however, that still greater differences are indicated by Sonnerat in his figure and description of the *Secretary* of the Philippine Islands, and which, as far as I am aware, has not been noticed by more recent naturalists. Whether or not the *Secretaries* of these three localities, the Cape of Good Hope, the Gambia, and the Philippines, may eventually turn out to be really distinct, or only varieties of the same species, must be left for future observation; but it is at least useful to direct the attention of travellers, collectors, and zoologists to the subject, and with this intention I will here state the principal marks which appear to distinguish each, giving them provisionally specific names, derived from the localities which they respectively inhabit.

1. *Gyp. Capensis*, with the plume of long cervical feathers commencing upon the *occiput*, spreading irregularly over the upper part of the neck, narrow throughout the greater part of their length as if the beard had been cut on each side close into the shaft of the quill, and spreading only at the point. Inhabits the Cape of Good Hope.

2. *Gyp. Gambiensis*, with the cervical crest commencing some distance below the *occiput*, arranged in two regular series, one on each side of the neck, with the intermediate space clear, and composed of long spatule-shaped feathers, much broader throughout than in the last species, though similarly decreasing in width towards the root. In both these species the two middle feathers of the tail are considerably longer than the others. Inhabits Senegambia.

3. *Gyp. Philippensis*, with the cervical crest spread irregularly from the *occiput* to the bottom of the neck, the longest feathers being those situated the lowest, which is just the reverse of what we observe in *Gyp. Gambiensis*, and with the two exterior tail feathers the longest, so that the tail appears forked. This is apparent not only in Sonnerat's figure, but is expressly mentioned in his detailed description, and, if confirmed by future observation, is clearly indicative of a specific distinction. Inhabits the Philippine Islands. Described and figured in Sonnerat's 'Voyage à la Nouvelle Guinée,' p. 87, t. 50.

The colours of the three species or varieties here indicated do not seem to be materially different in other respects."—W. O.

A collection of skins of *Birds*, formed in Hayti by J. Hearne, Esq., Corr. Memb. Z.S., and presented by him to the Society, was exhibited. At the request of the Chairman, Mr. Gould brought the specimens severally under the notice of the meeting. They comprised sixteen species, two or three of which appeared to be hitherto undescribed; including a *Humming Bird*, which Mr. Gould believed to be the representative of a new species, allied to *Trochilus pectoralis*, Lath.

There was also exhibited the skin of the *Mammiferous* animal recently described by M. Brandt, in the Transactions of the Imperial Academy of St. Petersburg, as the type of his new genus *Solenodonta*. It was obtained by Mr. Hearne in Hayti, where it is known as the *Agouta*. Respecting it Mr. Hearne writes, "The only quadruped, I believe, found on the island on the landing of Columbus was the *Agouta*, a little larger than, and somewhat resembling, a *Rat*, with an equally long tail and with a longer snout; whose food is chiefly grain, although the animal is carnivorous also; its hair is red. I had one alive intended for the Society, but it received a wound from a cat of which it died, and the skin is too miserably preserved, I fear, to be of use; but I shall bring it myself, or early send it; and I shall endeavour to get another alive, and in such state to send it to you."

The following note by H. Bruce Campbell, Esq., on a white variety of the *Blackbird*, *Turdus Merula*, Linn., recently presented by him to the Society and now living at the Gardens, was read.

"The curiosity which I have the pleasure to present to the Zoological Society, (a bird of the common *Blackbird* kind, the *Merle noir*

of M. Temminck, entirely white, including the plumage, beak, legs, and feet,) was discovered in June, 1832, near a farmhouse in the occupation of Mr. Owkam at Bilsthorpe, Nottinghamshire. There were two other young ones in the nest, the plumage of which, as well as that of the parent birds, was of the ordinary caste. The old birds made a second nest in the following month, near to the first one, in which four eggs were deposited; one of these was entirely different from the rest, resembling in colour the egg of the *common Duck*; this nest was unfortunately taken by some boys in the village; it is probable if this had not been the case, that there would have been produced a second extraordinary freak of nature.

“ There is at the present time in the possession of the Rev. Joshua Greville at Weston Pavell, near Northampton, a pyeballed male bird of this species, the white preponderating; it is now six years old and an excellent songster. It was originally black, and when about two years old its plumage changed and became spotted black and white.

“ It is said that these birds have been occasionally found white on the Alps and other high mountains, which alteration in colour is ascribed to the continued cold in those places, an effect which it is known is produced in the case of the *Ptarmigan*, &c. Albin mentions having had a bird of this species “ finely mottled,” sent to him by Sir Robert Abdy out of Essex. Buffon makes mention of a white *Nightingale*, and in the Museum at Oxford, there is a *Chaffinch* completely white. Many other instances of white varieties are furnished by authors and by collections.

“ The present is a male bird, but though he has the quickly repeated chirp and all the habits of his kind, nature, when she altered her regular course and presented him with his snowy costume, seems therefore to have denied to him the usual vocal powers of his tribe: he is no warbler, but from his frequent fruitless attempts, it may be inferred, that he feels the dear price at which he has been permitted to wear his novel and attractive plumage.”

With reference to an observation in the preceding note, Mr. Yarrell remarked that no inference could safely be drawn from the colour of the egg as to that of the bird to be produced from it: a deficiency of the superadded colouring, reducing the egg to its ground colour alone, being by no means an uncommon occurrence, and the product in such cases not deviating from the usual appearance of the race.

Mr. Cox added that he had at present under his care a nest of the *domestic Sparrow*, *Passer domesticus*, Briss., all of which, with one exception, exhibited the usual characters of their race: one, however, was entirely white. He stated his intention of presenting to the Society this variety, as soon as the young bird was sufficiently reared.

The following note by Sir Robert Heron, Bart., M.P., Vice-President, was read.

“ My male *black Swan*, *Cygnus atratus*, died yesterday (June 29, 1835). He had been long going off, apparently through old age, though not more than fifteen; yet he has left four young ones, not three months old. His widow is still healthy, and does not appear to grieve much; nor did she pay any attention to him in his last days, probably because engaged with her young. They have hatched in all forty-four, and reared forty young ones. They were chiefly hatched in January, and always in an earthen wigwam built for them in a small island. Once there were two broods in a year, the next year only none.”

July 28, 1835.

William Yarrell, Esq., in the Chair.

Specimens were exhibited of eight species of *Mice* and *Rats*, collected in India by Walter Elliott, Esq. They were brought under the notice of the Meeting by Mr. Gray, who stated that five of them were hitherto undescribed. Of these he pointed out the distinguishing characteristics. Among them were three which, on account of their possessing a peculiarity in the structure of their molar teeth, he regarded as representing a section in the genus *Mus*, which might, perhaps, be considered deserving of generic distinction. The remaining species were the *Mus oleraceus*, Benn. ; the *Mus platythrix*, Ej.; and the *Mouse* which Mr. Gray has figured, from Gen. Hardwicke's drawings, in the 'Illustrations of Indian Zoology,' under the name of *Arvicola Indica* : it is, however, really a *Mus*.

Mr. Gray stated that Mr. Elliott had made copious notes respecting the habits of the several species exhibited, and that it was his intention to communicate them to the Society. He added that Mr. Elliott's collection contained many other interesting specimens of *Mammalia*, as well as of other classes of animals ; and that selections from it would be brought, from time to time, under the notice of future Meetings.

Mr. Gray also exhibited specimens of two remarkable species of *Partridge*, *Perdix*, Mey., which he regarded as previously undescribed. They were brought from the Gambia by Mr. Rendall, a selection from whose collection had been exhibited at the previous Meeting by Mr. Ogilby. Mr. Gray pointed out the distinguishing characteristics of the birds exhibited.

Mr. Gray subsequently exhibited, also from Mr. Rendall's collection, several *Shells* which appeared to him to be hitherto unnoticed, including an undescribed species of *Cryptostoma*, Blainv.

Among the *Shells* of the same collection was one that had been incrustated by a *Coral*, but in which the mouth had been preserved open in consequence of its having become the habitation of a *Pagurus*, the movements of which through the aperture had prevented that part of the shell from being involved in the general incrustation. Mr. Gray exhibited other specimens of analogous incrustations, some of which had been regarded by authors as constituting real species. The incrustating *Coral* is generally an *Alcyonium*, but in some cases it is a *Cellepora*.

The exhibition was resumed of the previously undescribed species of *Shells* contained in the collection of Mr. Cuming. Those brought on the present evening under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby. They comprised the following species of the

GENUS PECTEN.

PECTEN SUBNODOSUS. *Pect. testâ subæquivalvi, æquilaterali, auriculis inæqualibus; striis radiantibus numerosissimis, radiisque decem, crassis, rotundatis, alternatim nodoso-vesicularibus vel subnodosis; intus plerumque purpureo signatâ: long. 5·25, lat. 2·75, alt. 5· poll.* C. M.

Variat α , colore rufo-fuscescente, striis albis. *Hab.* ad Sinum Californiæ.

β , coloribus subvariegatis pictâ seu fuscâ, maculis albis ut plurimum notatâ. *Hab.* ad Insulam Platæ, Columbiae Occidentalis.

γ , testâ depressiore, colore aurantiaco nitente. *Hab.* ad Sinum Tehuantepec, Mexicanorum.

Found in sandy mud and coral sand in from ten to seventeen fathoms.—G. B. S.

PECTEN MAGNIFICUS. *Pect. testâ subæquivalvi, æquilaterali, auriculis inæqualibus; striis radiantibus exiguis numerosissimis, radiisque tredecim, crassiusculis, rotundatis, nonnunquam subnodosis; intus albâ purpureo marginatâ: long. 5·5, lat. 2·, alt. 5·5 poll.* 1201

Variat α , colore sanguineo nitente. *Hab.* ad Insulas Gallapagos.

β , testâ fuscâ, maculis albidis variegatâ. *Hab.* ad Insulam Platæ, Columbiae Occidentalis. 5. 11.

A single specimen of var. α was found in coral sand at a depth of six fathoms: var. β was also found in coral sand in seventeen fathoms.—G. B. S.

PECTEN DENTATUS. *Pect. testâ valdè inæquivalvi, æquilaterali, auriculis æqualibus; valvâ planulatâ sulcato-radiatâ et striatâ, alterâ valdè convexâ, levigatâ, radiatim sulcatâ, margine ventrali profundè dentatâ: long. 3·75, lat. 1·5, alt. 3·5 poll.* 7. 11.

Hab. ad Sanctam Elenam.

Found among sand and stones in twelve fathoms.

The flat valve is of a dark brown colour outside, white with a broad dark purple margin within; it falls deeply into the convex valve, whose margin is deeply cut between the ribs; this latter valve is of a brownish colour outside, and nearly white within.—G. B. S.

PECTEN TUMIDUS. *Pect. testâ subinæquivalvi, æquilaterali, auriculis magnis, subæqualibus; valvâ alterâ turgidâ, fusco rufescente albidoque variegatâ, radiatim 18-costatâ, costis supernè planulatis, interstitiis transversim striatis, alterâ turgidiorè, albicante, radiatim sulcatâ, costis interstitialibus latioribus, planulatis, lateribus*

fusco-variis; marginibus ventralibus acutè dentatis: long. 1.75, lat. 1., alt. 1.75 poll.

Hab. ad Sanctam Elenam et ad Salango, Columbiæ Occidentalis. Found in sandy mud at from six to ten fathoms.—G. B. S.

PECTEN CIRCULARIS. *Pect. testâ suborbiculari, tumidâ, subæqualvi, æquilaterali, fusco alboque variâ, auriculis magnis, subæqualibus; costis radiantibus octodecim interstitiis latioribus, arcuatim striatis; valvâ alterâ sulcis profundioribus: long. 1.5, lat. 0.8, alt. 1.4 poll.*

Hab. ad Sinum Californiæ. (Guaymas.)

Found in sandy mud at a depth of seven fathoms.—G. B. S.

PECTEN ASPERSUS. *Pect. testâ suborbiculari, depressiusculâ, subæqualvi, æquilaterali, auriculis inæqualibus, dextrâ majusculâ; valvarum alterâ radiatim costatâ, pallescente seu albâ, costis quatuordecim majoribus, rotundatis, lævibus, alterâ radiatim costatâ, costis quindecim acutioribus, fuscis, punctulis cærulescentibus aspersis, interstitiis tenuissimè transversim striatis, pallescentibus: long. 1.4, lat. 0.5, alt. 1.3 poll.*

Hab. ad Tumbes, Peruviæ.

Dredged in soft mud at a depth of five fathoms. This species has sometimes a few irregular blotches of white sprinkled over the darker coloured valve.—G. B. S.

PECTEN SPINIFERUS. *Pect. testâ subovatâ, depressiusculâ, subæqualvi, æquilaterali, auriculis inæqualibus, sinistrâ majore; valvis radiatim costatis, costis utriusque novem, latis, squamuliferis, squamulis fimbriatis; valvæ alterius marginibus dorsali, antico, posticoque spiniferis: long. 0.9, lat. 0.25, alt. 0.9.*

Hab. ad Insulam Lord Hood's dictam, Oceani Pacifici.

A single specimen of this beautiful little shell was taken on the reefs in coral sand.—G. B. S.

PECTEN PARVUS. *Pect. testâ subovatâ, depressiusculâ, subæqualvi, æquilaterali, albicante, auriculis inæqualibus, graniferis; valvis radiatim costatis, costis octo inæqualibus, transversim striatis; interstitiis radiatim sulcatis et transversim striatis: long. 0.7, lat. 0.25, alt. 0.8 poll.*

Hab. ad Insulam Lord Hood's dictam, Oceani Pacifici.

Found in coral sand on the reefs.—G. B. S.

Genus XYLOPHAGA.

XYLOPHAGA GLOBOSA. *Xyl. testâ globosâ, margine dorsali postico declivi, valvis accessoriis majusculis: long. 0.4, lat. 0.35, alt. 0.35 poll.*

Hab. ad Valparaiso.

Found in a piece of wood dredged from a depth of a hundred fathoms.—G. B. S.

A paper was read comprising "Descriptions of a few *Invertebrated Animals* obtained at the Isle of France," by Robert Templeton, Esq. It was accompanied by coloured drawings of the new species described in it, which were exhibited.

Of these animals two belong to the *Radiated* division of the animal kingdom. They may be characterized as follows :

ACTINIA SANGUINEO-PUNCTATA. *Act. flavescenti-rufescens, punctis sanguineis confertis per series longitudinales numerosas dispositis ornata ; ore guttis cæruleis quinque circumdato ; tentaculis viridescensibus, hyalinis.*

Hab. vix uncialis, super saxa.

XENIA DESJARDINIANA. *Xen. pallidè livido-cærulea ; polypis 8-, rariùs 9-radiatis.*

Hab. super lapides prope Black River.

The mass from which the polypes arise is spread over the surface of the stones to the extent, in many places, of more than a foot. It is usually about an eighth of an inch in thickness, and appears to be composed of an infinite interlacing of tubular stems. From the sides of these stems are given off peduncles, each of which terminates in a disc having a central mouth and eight (rarely nine) rays. These rays are simple on their under or outer surface, pectinated along their edges, and furnished on the upper or inner surface with short processes, having cupped or sucker-like extremities. The discs are perpetually in motion, waving from side to side as though in search of objects ; and when anything comes in contact with their rays or *tentacula*, the suckers instantaneously close in upon it, and the *tentaculum* doubles itself up like a finger and conveys the prey to the mouth : if the object be large, two or three of the *tentacula* are employed. When the prey is so large as not to admit of its being swallowed, the *tentacula* relax their hold and allow it to escape.

The remaining two belong to the *Annulose* type, and appear to represent two genera among the *Annclida*, nearly allied to the *Serpulidæ*.

ANISOMELUS.

Os tentaculis simplicibus octo, per paria dispositis, filiformibus, prehensilibus instructum.

Branchiæ? simplices, tentaculiformes, pedibus haud multo longiores, in segmentis corporis quatuor anterioribus sitæ.

Testa cylindrica, calcarea, erecta, ad basin in saxis immersa.

Obs. Numero et symmetriâ tentaculorum, necnon branchiarum simplicitate?, a *Terebellid* cæterisque generibus affinibus distinguitur.

ANISOMELUS LUTEUS.

Long. corporis vix ½ unc.

Hab. in saxis corallinis apud Black River.

Of the eight *tentacula* of this *Amelide*, one pair, that towards the ventral aspect, is short, and the opposite pair is long, being fully equal in length to the entire body : the intermediate pairs are intermediate also in length. When undisturbed, the animal projects from its tube or shell as far as the fifth or sixth segment, swinging itself from side to side, and moving its *tentacula* about. If anything is discovered suitable for food, the extremity of one or more of the *tentacula* is rolled around it, and by this means the substance is conveyed to the mouth. The *tentacula* are numerously ringed, and have in their interior a tube in which oval globules are distinctly seen moving to and fro, as the motions of the *tentacula* affect a few contiguous rings.

PIRATESA.

Os tentaculis seu branchiis numerosis, longè ciliatis, subulatis, simplici serie dispositis, cinctum.

Testa cylindrica, calcarea, erecta, e saxo parum prominente.

OBS. Genus propter tentaculorum branchiferorum dispositionem a *Sabellá*, Cuv., sejungendum.

PIRATESA NIGRO-ANNULATA. *Pir. brunnea, tentaculis pallidioribus nigro confertim interruptè annulatis.*

Hab. in saxis corallinis apud Black River.

The *cilia* of the *tentacula* arise in a single row along each edge of the upper surface, and turn in upon any substance that is seized so as to embrace it tightly : when at rest, they are doubled up into little coils or knots, and are only expanded when the animal is searching for food. When engaged in this operation it elevates itself out of the tube, turns the disc down with very deliberate motion towards the adjacent part of the stone, and apparently examines the surface with minute attention ; the *tentacula* at this time being constantly moved about so as to ensure the entrapping of any animal that may rest within their reach.

August 11, 1835.

Dr. Horsfield in the Chair.

A letter was read, addressed to the Secretary by J. B. Harvey, Esq., Corr. Memb. Z.S., and dated Teignmouth, June 7, 1835. It referred to the writer's success in dredging over the rocky ground off Torquay, whence he anticipates that he shall obtain many interesting *Corallines* and *Asteria*. A selection from those already collected by him, including a specimen of the genus *Comatula*, accompanied the letter and were exhibited.

Mr. Harvey states that the specimen of *Caryophyllia Smithii*, referred to in a previous letter, (page 4,) is still living in his possession and is quite healthy. "The half one by the side of it, which was broken in forcing it from the rocks, is also alive, and has nearly reproduced the round shell: the cup was destroyed, at the time it came into my hands, for considerably more than half its circumference; in the course of the eight months which have since elapsed the reproduction has been such as nearly to complete the circumference of the cup. The *Pyrgomata* on the coralline are also alive."

Mr. Burton, at the request of the Chairman, placed upon the table a specimen of the species of *Ratelus* originally described by Pennant as the *Indian Badger*, and by Shaw under the name of *Ursus Indicus*. To aid in its comparison with the *Ratel* of the Cape of Good Hope, from which Mr. Burton regards it as distinct, he describes it in considerable detail.

"This animal, which evidently belongs to the last genus of Cuvier's arrangement of the *Plantigrades*, measures from the tip of the nose to the extremity of the tail 3 feet 3 inches, of which the head and neck occupy $11\frac{1}{2}$ inches, leaving $21\frac{1}{2}$ for the length of the body. The anterior extremity is 8 inches long, exclusive of the nails; the posterior about 6. The length of the head may be about $6\frac{1}{2}$ inches; but the great thickness of the neck, the outline of which is continuous with the *vertex*, renders the exact occipital termination of the head imperceptible. From the extremity of the nose to the inner angle of the eye is 2 inches: from the same point to the external opening of the ear is $4\frac{1}{2}$. From the comparative length of the body and limbs it results that the animal is very low on the legs (or, as the French authors term it, *trapu*), long in relation to its height, and necessarily higher before than behind. When standing, it cannot be computed at more than 9 or 10 inches high at the shoulder, and about 6 or 7 at the crupper.

"The head is rather small for the size of the neck and body. The eye is likewise remarkably diminutive, the distance between the extreme points of the *canthi* being less than half an inch, an opening which leaves little space for the eyeball externally. There

is no external ear : the rudiments of it may indeed be faintly traced in some parts surrounding the *meatus externus* ; but these are level with the surrounding skin. Below there is a hard low ridge, or rather thickening of the integument, and on the opposite side of the opening, a small raised tubercle, which may be considered as vestiges of the *tragus* and *antitragus* ; but beyond these obscure indications there is nothing conformable to the character of an auricle.

“ The toes of the fore feet are five in number, and are armed with enormous claws or nails, of which the internal one rises so high on the foot that its extremity is parallel with the origin of the second : this last and the fourth are equal ; the length of their nails about $1\frac{1}{4}$ inch : the nail of the middle one is the longest of all, being about $1\frac{1}{2}$ inch in length : the length of the outer one is nearly 1 inch. The superior aspect of the nail presents a surface of some thickness, rounded off at the edges ; the under surface is concave, and the edge reduced to a mere line, except towards the point where the *laminae* separate. The lateral surfaces of these nails are perfectly flat, so as to adapt them for accurate apposition to each other ; and the toes being also short and flattened at their sides, it is to be concluded that the whole are closely approximated when the animal works in the ground, and that the foot is thus formed into a broad and powerful spathe.

“ The character of the hind foot is essentially different : the toes are less developed, and the nails very short, and comparatively feeble. On the under surface the *laminae* of the nails are separated to such an extent, that a deep oval *fossa* is formed between them. The plant of this foot protrudes so much that it is almost globular, in consequence of which the short nails do not reach near the ground.

“ The dental formulary is that of *Ratelus Capensis*. The teeth are fewer than in any other genus of the same tribe, as might be expected from the abruptness of the head anterior to the eyes, and the shortness of the mouth. The four middle incisors of the lower jaw are the smallest and most feeble : the two external ones of this range and the four middle ones of the upper jaw are somewhat larger and stronger. In this last the two outer incisors differ essentially from all the others, and partake of the character of canines. They are at least three times as large as the adjoining ones, strong, round, and curved inwards. The true canines are powerful teeth : those of the lower jaw, when the mouth is shut, are imbedded in a space between the upper external incisor and canine ; the lower ones approximate closely to the external incisors. The front molar of the lower jaw is very small ; the others gradually increase in size to the last, which is long, has two points, and a tuberculated surface behind. The great carnivorous tooth of the upper jaw has a tubercle or heel projecting inwards : the breadth of the posterior tooth of this jaw exceeds its length ; so that in these characters it approaches the *Mustelidæ*.

“ The colour of the animal is black with the exception of the back and upper parts of the head and neck, although a few black hairs thinly scattered along the middle of the back give a faint gray

ting to the super-vertebral region, which, however, is soon lost in the white of either side. White also prevails along the dorsal aspect of the tail to within an inch of its termination, where it is lost in the black of the point. The margin of the white colour forms a concave line across the face, whence, descending along the side of the neck, ribs, flanks, and rump, it meets the line of the opposite side on the tail. The remaining parts, including the extremities, are, as before stated, more or less black.

“As the animal approaches the *Ursine* tribe in its form and plantigrade movement and the *Weasels* in its dentition, so with respect to its integuments it bears some analogy to the *Porcine Pachydermata*. The skin is tough, thick, and hard; the hairs are long, loose, coarse, and scanty, without vestige of the finer wool which immediately envelopes the skin of so many other animals. They are, however, much thicker on the upper than on the lower surface both of the body and limbs. On the posterior parts of the thighs they are so long as almost to form tufts; on the front of the fore legs they are also very long, and their course is here directly across the limb. On the sides of the neck the lay of the black hairs is precisely vertical, thus meeting the white ones, whose course is longitudinal, exactly at right angles. Round the opening of the ears there is a peculiar circular ring of hairs, about half an inch in breadth, which bears a rude similitude to the feathered circles surrounding the eyes of the nocturnal birds of prey. The face and jaws are nearly naked, scarcely any traces of hair being observable in these parts: the whole ventral aspect is also remarkably destitute of this covering. A few long black hairs are here and there met with on the chest, belly, and under surface of the extremities, but not in sufficient quantity to conceal the skin. There is also a line along the inferior surface of the tail entirely denuded of hair. The integuments round the *anus* are naked, and dilated into a kind of circular bag or pouch, though not to a considerable extent. The specimen from which this description is taken is a male.

“It is impossible to examine this animal, even in the most cursory manner, without coming to the conclusion that it is wonderfully adapted for making its way beneath the surface of the earth. The powerful fore leg, armed with enormous claws; the cuneiform head; the face deprived of hair; the minute and sunken eye; the entire absence of external ear; the strong and muscular neck and shoulder; the comparative diminution of the posterior extremities, whereby the bulk of the hinder parts is lessened; the naked *abdomen*;—all unite to characterize it preeminently as a digger. And in fact, among the population of its native regions, it is said that it seeks its choicest food in the cemeteries, and such is its dexterity in tearing open the graves of the dead, that no tomb is sacred from its attacks. The latter part of this account is probably in some degree overstated; but it has, at all events, in those parts obtained the appellation of the *Gravedigger*. The generic term of *Storr*, *Mellivora*, although it may suit the African species, is consequently peculiarly inappropriate in reference to this.

“It is a native of the upper provinces of Bengal, where, however,

it is said to be rare. The present specimen, which is in excellent condition, was brought from thence by Dr. Sandham, surgeon of the 11th Light Dragoons, by whom it was presented to the Museum of the Army Medical Department. It is brought under the notice of this Society with the sanction of the Director General, Sir James McGrigor, Bart.

“This animal has been almost entirely neglected by systematic writers. It was alluded to by Pennant, but in so short, vague, and unsatisfactory a manner, that it is impossible to form any distinct notion of it. Shaw followed and copied the few words of Pennant which relate to it, and termed it *Ursus Indicus*. Lastly, the late General Hardwicke, whose talents and perseverance made him familiar with the natural history of Northern India, published some account of it in the 11th volume of the ‘Linnean Transactions’. But it does not appear that he considered it as different from the *Rat. Capensis*, or was sufficiently aware of its peculiarities to enable him to erect it into a distinct species. A specimen formerly living in the collection of this Society was understood to have been brought from Madras.

“In the synopsis of *Mammalia*, in Griffith’s translation of the ‘Animal Kingdom’, there is merely a note stating that the *Ursus Indicus* of Shaw is probably a variety of the *Ratel*. The French authors have entirely neglected it; neither the Baron nor M. F. Cuvier makes any mention of it. M. Lesson, still later, asserts that there is but one species in this genus; ‘On n’en connaît qu’une seule espèce,—*Ratel du Cap*.’”—E. B.

Mr. Burton subsequently exhibited a specimen of an *Agriopus*, Cuv., which he regarded as hitherto undescribed. He characterized it as the

AGRIOPUS UNICOLOR. *Agr. brunneo-fulvus*; *dentibus setaceis maxillaribus*; *radiis mollibus pinnæ dorsalis quatuordecim, analis decem*.

“This fish bears a general resemblance to *Agr. torvus*, Cuv. & Val., the type of the genus. Its length is nearly similar, but the body is more slender and compressed, particularly towards the middle. The lower outline is sufficiently regular. The dorsal line from the eighth to the fourteenth spinous ray is somewhat concave, if, however, this effect be not produced by imperfect stuffing. The eyes protrude less than in *Agr. torvus*. The profile furnishes one of the most marked distinctions between the two species: that part between the eyes, instead of being vertical, slopes considerably; and the line of the snout, in place of descending in an angle of about forty-five degrees, is very nearly horizontal, or in a line with the body. The mouth is somewhat deeper.

“The next remarkable variation is in the teeth. The observation which Cuvier and M. Valenciennes have applied to those of *Agr. torvus*—‘c’est à peine si l’on sent aux mâchoires quelques petits dents en velours’—is by no means applicable here. On the contrary, they are very conspicuous, rather ‘en carde’ than ‘en

velours', and are irregularly crowded on the maxillaries. Those towards the angle of the mouth are somewhat longer. The lines of ossific granulations, which, passing forwards from the superciliary ridges, unite in an angle on the forehead, are much more distinct: the appearance of those clustered on the posterior suborbital and temporal bones is much the same in both species. The upper division of the border of the *operculum* approaches nearer to a semi-circular form.

"The attachment of the pectorals and ventrals, as well as their general form and number of rays, is also alike. The dorsal presents some variations; the height of the first spine being only two fifths of that of the second, the latter and the fourth equal, and the third somewhat the longest of all. The emargination in the membrane between the second, third, fourth, and fifth spinous rays is obviously deeper. The number of soft rays exceeds that of *Agr. torvus* by one, being fourteen in number. The anal has also one additional ray.

D. 21 + 14; A. 1 + 10; P. 1 + 8; &c.

The caudal has nothing worthy of note, unless its termination is more lunated; but this distinction must be received with caution, as the injury commonly sustained in this part by dried specimens renders its character equivocal.

"The skin is smooth, equally free from scales, warts, tubercles, or protuberances of any kind, with the exception of the granulations on the head before mentioned. It is of a yellowish brown colour throughout, darker on the upper part of the head, and above the lateral line; lighter below, the lightest part being immediately posterior to the *operculum*. This description is taken from the dried specimen; what variations occur in the fresh subject I have no means of ascertaining. Towards the superior edge of the dorsal, and over the ventrals and caudal, the colour becomes yet darker: the pectorals incline to blackish. The black bars and blotches which prevail throughout the dark ground colour of *Agr. torvus* are entirely absent in this species. The lateral line is nearly straight, marked as it passes along the anterior part of the body by distant and obscure tubercles, all traces of which disappear at the commencement of the soft dorsal. These are the principal distinctions between this fish and *Agr. torvus*, with which it has probably hitherto been confounded.

"A remark of Cuvier and M. Valenciennes in the 'Histoire Naturelle des Poissons,' supposes the existence of other species, although the little there said is not applicable to this: 'Parmi nos individus, il s'en trouve un dont la peau est toute brune,' (so far only it accords with our description) 'mais relevée partout en petites bosselures arrondies, comme des verrues peu saillantes. Nous ne savons s'il appartient à une espèce différente, ou si ce n'est qu'une variété.' It may not unreasonably be assumed from the above description that this is a distinct species, under which impression it has been brought under the notice of this Society.

"It is an inhabitant of the Cape seas, from whence the present

specimen, which forms part of the collection of the Army Medical Department at Chatham, was brought."—E. B.

Mr. Gray exhibited various species of the Linnean genus *Venus*, in illustration of the subdivisions into other generic groups which appeared to him to be, in the present state of the science, valid. He pointed out the characters of these several genera; referred to the types of each; and noticed many hitherto undescribed species contained either in his own collection or in that of the British Museum.

Mr. Bennett called the attention of the Society to a *Paradoxure* now living at the Gardens, which he regarded as previously undescribed. He characterized it as the

PARADOXURUS GRAYI. *Par. vellere denso, subæquali; olivaceo-fulvescens cinereo tinctus, subtus pallidior; facie, auriculis, pedibusque nigris, illius vittâ nasali, fasciâ abbreviatâ suboculari, fronteque cinereis.*

Long. corporis cum capite, circiter 20 unc.; caudæ paullo major. *Hab. in Indiâ.*

The fur of the animal, unlike that of *Par. Typus*, F. Cuv., and some other closely related species, is nearly of equal length, and is dense and in some degree woolly. Its colour above is a light fulvous brown, showing in certain lights a strong cinereous tinge, owing to the black tips of many of the hairs. Beneath it is lighter, and has a more cinereous tinge. The limbs are ash-coloured and deeper in intensity towards the feet, which are black. The tail is throughout of the same colour with the body. The ears are rounded, covered with hairs, and nearly black. The face is black, with the exception of the forehead, of a longitudinal dash down the middle of the nose, and of a blotch-like short oblique band under each eye; these markings being grey. There are no traces of longitudinal bands or spots on the body.

The separate hairs are dusky at the base and pale yellowish in the middle: they are tipped with black.

The tail is constantly twisted in the manner in which it is occasionally borne by *Par. Typus*, and cannot be rendered straight.

As the specimen was purchased of a dealer, the precise part of India in which it was captured cannot be ascertained.

August 25, 1835.

William Yarrell, Esq., in the Chair.

A letter was read, addressed to the Secretary by Captain Manby, R.N., dated Yarmouth, Aug. 22, 1835, and announcing the stranding of an enormous whale, near Southwold in Suffolk, on the 19th of August. Captain Manby states that it is of the species denominated by Linnæus, *Balæna Physalus*.

Drawings were exhibited of three *Fishes* captured at Port Praya, by Capt. P. P. King, R.N., Corr. Memb. Z. S. They were communicated by Mr. Broderip. They comprised representations of *Serranus tæniops*, Cuv. & Val.; *Sargus fasciatus*, Eor.; and an *Acanthurus*, apparently hitherto undescribed, the

ACANTHURUS KINGII. *Ac. purpureo-virescens, suprâ lineis azureis undulatis interruptis numerosis longitudinaliter notatus; operculorum margine, pinnae pectoralis maculâ, dorsalis basi, maculique ovali spinam caudalem cingente rufescenti-flavis: pinna caudali lunatâ.*

D. 10 + 27. A. 3 + 25. P. 17. V. 1 + 5. C. 16.

Long. tot. $12\frac{7}{8}$ unc., alt. corporis, $4\frac{7}{8}$; long. *radiorum pinnae dorsalis*, $1\frac{1}{2}$; lat. inter oculos, 1, ad pinnas pectorales, $1\frac{7}{8}$.

Besides the markings enumerated, there is a blue line at the lower part of the soft portion of the dorsal fin, separating it from the reddish yellow streak of its base. The branchial rays are reddish yellow.

The teeth are eighteen above and sixteen below: they are crenated and closely set. The scales are small, ovate, square at the outer margin, and minutely serrated.

The following Notes, by Mr. Owen, on the anatomy of the *Kinkajou*, *Cercoleptes caudivolvulus*, Ill., were read.

“The anatomy of an animal which is the sole representative of its genus, and which, in its external form and habits, manifests a relationship with genera belonging to two different orders of its class, must always be a desirable addition to zoological science. The death of the *Kinkajou*, which has been for the last two or three years in the Menagerie, has afforded the opportunity of determining the natural affinities of a somewhat anomalous form, and of thus compensating in some degree the loss of a living specimen, by the

additional facts contributed in consequence to the science which it is our object to advance.

“ It is not in my province to enter upon an external description of the *Kinkajou*, nor is such an account now required, since it has already been given, with more or less of detail, by the best systematic zoologists of the last half century. Its interest, as an osculant form, may be gathered by a simple reference to the modes in which it has been considered and classified by different authors, and to the synonyms indicative of the different degrees of importance attributed by them to its outward peculiarities. Classed among the *Viverridæ* by Shaw, under the name of the *prehensile Weasel*, and raised to the *Quadrumana* by Pennant, as the *yellow Macauco*, it holds a somewhat intermediate station in the system of Cuvier, who places it in the *Plantigrade* family of *Carnivora*, under the generic name *Cercoleptes*, applied to it by Illiger.

“ In the following description of the anatomy of the *Cercoleptes*, I shall therefore consider it with reference more especially to the *Lemures* and the *Plantigrade Carnivora*.

“ The specimen measured in length, from the end of the nose to the root of the tail, 1 foot 4 inches; and the length of the tail was 1 foot 5 inches.

“ There were no clavicles, not even in a rudimentary state. The clavicular portion of the *sterno-mastoideus* arose from the cartilage of the first rib, and the corresponding portion of the *deltoid* from the transverse processes of the lower cervical *vertebra*.

“ The abdominal *viscera* were protected by a large *omentum* streaked with fat. The *œsophagus* was continued about an inch into the *abdomen*, and entered the stomach about an inch from the left extremity. The pyloric extremity of the stomach was bent upwards abruptly, and suddenly became narrow.

“ The *duodenum* made a large semicircular sweep downwards, backwards, and to the left, being loosely connected by a wide duplicature of *peritoneum* for the greater part of its course; it was also connected with the *colon* by a fold of *peritoneum* continued from it. The remainder of the intestinal canal was disposed in rather large folds, connected to a mesentery about 2 inches broad, in which the mesenteric vessels formed only a single series of arches. The diameter of the small intestine was about half an inch, becoming somewhat less towards the *colon*. There was a slight constriction indicating exteriorly the commencement of the large intestine, and better marked within by a sudden thickening of the muscular coat, and the commencement of a few narrow longitudinal folds of the mucous membrane, but there was no *cæcum*.

“ The whole length of the intestinal canal was 6 feet 6 inches; the length of the large intestine was only 5 inches. At its termination it became very muscular, and the lining membrane was thrown into irregularly transverse *rugæ*. In the rest of the intestinal canal, with the exception of the longitudinal folds above mentioned, the mucous membrane was smooth and uniform.

“ The liver was composed of three principal divisions, of which the left had a small *appendix* at its under surface. The middle or cystic division was deeply cleft into three lobes, the round ligament passing into the left notch, and the gall-bladder being lodged in the right, with its *fundus* on a level with the upper convex surface of the gland. The right division of the liver was also cleft into three lobes, which were again further subdivided by shallower fissures, the smallest lobe occupying the usual place of the *lobulus Spigelii*, viz. the lesser curvature of the stomach.

“ The gall-bladder had an entire investment of *peritoneum*, and two of the primordial *cæca* had been dilated and retained in their original simple condition to form this receptacle: one of them was, however, much less than the other, appearing as a small vesicle appended to the origin of the cystic duct. I have met with similar structures in other animals: in the *Hyrax Capensis* there were two accessory gall receptacles; and in a preparation in the Hunterian collection, three hepatic *cæca* have been almost equally developed to form the biliary reservoir (this is from some small quadruped, species unknown, No. 820, Gallery Catalogue). I dwell more particularly on this circumstance, because it is an anomaly which has not, so far as I know, been described, and because it throws some light on that part of the structure of the liver which is generally allowed to be still left in the most uncertain state, viz. the ultimate disposition of the biliary ducts. It obviously accords best with the opinion of Müller, that the *tubuli biliarii* terminate in, or rather commence from, blind extremities.

“ The *pancreas* consisted of a transverse and circular portion, the latter following the curve of the *duodenum*; the duct terminated, with the *ductus choledochus*, 2 inches from the *pylorus*.

“ The spleen occupied the usual situation; was 4 inches long, 1½ inch broad, and ½ an inch thick; its weight 13½ drachms; it was of the usual elongated trihedral shape.

“ The kidneys were situated high in the loins, the right higher than the left, of a somewhat elongated form, with a smooth simple exterior, neither notched nor painted with arborescent veins, as in the typical *Carnivora*. The *tubuli uriniferi* terminated on a simple elongated *mamilla*, formed by the union of five lateral processes. The ureters entered, as usual, behind the neck of the bladder.

“ The supra-renal glands were very small, reddish coloured, and healthy, although imbedded in a dense strumous mass which occupied the interspace of the kidneys.

“ The ovaries were a little larger than peas, with a smooth exterior, enveloped in a loose serous capsule having only a small opening turned towards the horn of the *uterus*, and in which the head of a probe could be with difficulty admitted. They were suspended by a duplicature of *peritoneum* continued from the lower end of each kidney.

“ The length of the *corpus uteri* was 1 inch; of each *cornu* 2 inches; of the true *vagina* ¾ of an inch; of the urethro-sexual canal 1 inch. A well-marked transverse fold divides this from the

vagina. There were no anal scent-bags, but merely superficial follicles. In this respect *Cercoleptes* has a nearer affinity to *Ursus*, in which the anal bags are very small and shallow, than to the *Weasel* tribe, in which they are largely developed.

"The tongue was long, smooth, flat, and slightly emarginate at the tip. It had seven fossulate *papillæ*; the three nearest to the *epiglottis*, and forming the *apex* of the triangle, were the smallest. There was a long and large elastic *lytta*, ligamentous anteriorly, cellular posteriorly, surrounded by a muscular sheath of circular fibres.

"The tonsils were large and oblong. There was no *uvula*. The *epiglottis* was well developed, with a pointed *apex*. There were two narrow, shallow slits in place of laryngeal *sacculi*. The thyroid glands were separate, oblong, pointed at their lower extremities. There were more than twenty-five tracheal rings, which were incomplete behind.

"The brain of the *Kinkajou* is characterized by convolutions disposed as in the *Carnivora* generally; but the anterior transverse anfractuosity (marked No. 1. in Plate XX. of the 'Zoological Society's Transactions') runs more obliquely from within, outwards and forwards, and there is a greater proportion of brain anterior to it. The general form of the brain is longer and narrower than in the *Cat*. The *cerebellum* is separated from the *cerebrum* by a strong bony *tentorium*.

"The morbid appearances in the parts examined by me were small firm tubercles studding the liver, spleen, and kidneys; a large tuberculous mass between the kidneys; and a similar mass occupying the place of the mesenteric glands: both these masses were of scirrhus hardness, and of an irregular fibrous structure in the middle.

"In the note-book of our medical superintendent, Mr. Youatt, is the following record of the illness of the *Kinkajou*:

"May 17th. Has not been well for some days; dull, and off its food. A little castor-oil operated well.

"May 23rd. Dismissed well.

"May 26th. Again off its food.

"June 3rd. No symptom of serious illness.

"June 7th. Spirits and appetite gone; sad heaving at the flanks. There is deeply seated organic mischief.

"June 10th. Sinking.

"June 15th. Died.

"In his description of the morbid appearances, Mr. Youatt observes: 'When I attempted to cut through the diaphragm, in order to bring the lungs into view, I met with a hardness which I could with difficulty cut, and which creaked under the knife. When I got the contents of the *thorax* fairly out, I found adhesions under the diaphragm, but not a vestige either of *pericardium* or *mediastinum*; in lieu of them was a hardened, almost cartilaginous mass, presenting a convex surface superiorly, adapting itself to the form of the *thorax*, with a hollow formed in it, which contained the

heart; and a prolongation on either side becoming thinner and thinner, until at the base was some vestige of membrane. The heart was contained in this cavity, but its vessels, both pulmonary and arterial, were apparently lengthened in order to reach the lungs. The lungs, pressed out of their place by this unnatural body, were diminished in size; the substance softened, half pultaceous, and, when squeezed, a purulent matter escaped. There were also numerous minute tubercles in the substance of the lungs. The animal had wasted almost to a skeleton.'

"We may therefore regard the complaint of the *Kinkajou* as being a long-continued strumous disease, in which some of the tuberculous deposits, instead of suppurating, had become partially organized, and the cellular *septa* rendered ligamentous.

"I conclude with a few observations on the affinities of the genus *Cercoleptes*; as they are elucidated by the preceding anatomical account.

"Besides the differences of outward form which the *Kinkajou* presents, as compared with the *Lemur*, in the shorter muzzle, the absence of the hinder thumb, and the presence of the prehensile tail, as well as in the quality of the hair and the dentition, the following important discrepancies occur in the internal anatomy of these two genera:

"In *Lemur* the intestinal canal is above six times the length of the animal's body; in the *Kinkajou* it is scarcely five. In *Lemur* it is also complicated by a *caecum* of considerable length (measuring 15 inches in the *ruffed Lemur*, according to Mr. Martin, and which I found of $7\frac{1}{2}$ inches in length in a *Lemur nigrifrons*). The *colon* also in the *Lemures*, is largely developed, (measuring upwards of 2 feet,) and is sacculated at its commencement. In the *Kinkajou* the large intestine, as in the *Raccoon*, is separated from the small by a slight internal circular projection of the mucous membrane, and measures only 6 inches in length. The stomach is also narrower at the pyloric end, and more bent upon itself than in *Lemur*.

"With respect to the digestive glands, there are no material differences. In both animals the liver is much subdivided, and the spleen is large. The kidneys are of a simple exterior in the *Kinkajou*, as in the *Raccoon*; not lobulated, as in the true *Ursi*: in this respect they resemble *Lemur*, but the form is so usual as not to authorize any deduction from it. In the generative organs, however, the *Cercoleptes* recedes from the *Quadrumanous* type further than the *Lemur*, in the extent to which the *uterus* is divided, and the consequently greater length of the *cornua*, and Fallopian tubes. Its nearer affinity to *Procyon* is also manifested in the disposition of the serous capsule about the *ovarium*, which leaves only a small orifice sufficient to admit the end of a probe; while, in *Lemur*, the *ovaria* are situated, like those of the *Quadrumana*, almost as in the human subject.

"In the osseous system it may be noticed that the *Cercoleptes* de-

viates from *Lemur*, and approximates *Procyon* and its congeners, in the absence of a clavicle and the presence of a bony *tentorium*.

“ Thus all the more important parts of its anatomy show that its true position is in the *Carnivorous* order, and that it has the closest affinities with the *Ursiform Plantigrada*, making, however, the nearest approach to the *Quadrumanous* type in that family.”

September 8, 1835.

Thomas Bell, Esq., in the Chair.

A living *Iacchus Monkey*, *Iacchus penicillatus*, Geoffr., was exhibited, which had recently been presented to the Society by Mrs. Moore of Rio de Janeiro. It was accompanied by a note, in which it was stated to have been obtained from the province of Bahia. "Like most monkeys, it will eat almost anything; but its chief and favourite food, in its wild state, is the *Banana*. It is a very delicate animal, and requires great warmth; and its very beautiful tail is, in this respect, eminently conducive to the comfort of the little creature, who, on all occasions when he requires warmth, rolls himself in the natural boa with which Providence has, in its wisdom, endowed him."

A note by Mr. William Smith, relative to the animal of the *Argonauta Argo*, Linn., and forwarded through Mr. Gray, was read. The most important statement adduced in it, with reference to the question of the parasitic nature of the *Cephalopod* so frequently found in the shell, is thus expressed: "It seems pretty evident that the animal found in the *Argonauta* is a parasite, because, in the Bay of Naples, where it is very abundant, the shell is but rarely found; whereas the *Octopus* itself is constantly to be met with, and indeed is daily to be seen in the common market as an article of food. To give some idea of its comparative scarcity in union with the shell, I shall merely mention that the usual price of the animal alone is about fourpence; while a specimen inhabiting the shell cannot be obtained under five shillings."

The following Notes, by Mr. Martin, of the dissection of a specimen of the *small Nocturnal Lemur*, *Microcebus murinus*, Geoffr., which lately died at the Society's Gardens, were read.

"The animal was a male, and doubtless adult, as was sufficiently indicated by the development of the sexual organs. Its length from the nose to the insertion of the tail was 5 inches; that of the tail, 6; the ears were large and naked; the head was rounded; the muzzle short and pointed; the eyes were not so large, in proportion, as in the *slender Loris*, *Loris gracilis*, Geoffr., but were evidently of a nocturnal character, being extremely resplendent, the glare of the *tapetum lucidum* showing very bright through the round dilated pupil.

"The *penis* was furnished with a slender bone extending from the *glans* for nearly half an inch. The *glans* was compressed, with a lunar-shaped elevation, inclosing a small depression on its an-

terior aspect. The *testes* were of considerable magnitude, and inclosed in a pendent *scrotum*, which was very conspicuous.

“On opening the *abdomen*, two portions of the liver covering the stomach, the spleen with its upper end also lying upon the stomach, the left kidney, a section of the great curvature of the stomach, and the convolutions of the intestines, were presented to view.

“The liver consisted of a middle and a left lobe having an anterior aspect, and of a right lobe having a dorsal aspect, covered entirely by the right portion of the middle lobe. This middle lobe had two fissures; that to the left for the insertion of the *ligamentum latum*; that to the right, admitting the gall-bladder to appear; the bladder itself being situated near the edge, on the under side of the lobe, in a continuation of the fissure. On opening the *abdomen*, the gall-bladder as well as the lobe in which it is situated, cannot immediately be seen, owing to its dorsal inclination. The gall-bladder was very small, being about 3 lines in length: what struck me, however, as being very remarkable, was that, contrary to the general rule, its neck, or *apex*, was on the edge of the liver, its *fundus* being inwards; so that the duct made an acute turn at its commencement, and then proceeded along the body of the bladder; leaving this, it continued for half an inch, and then received two or three auxiliary hepatic ducts; and after a further course of the third of an inch, it entered the *duodenum* little more than a quarter of an inch below the *pylorus*.

“The spleen was long and slender, measuring 1 inch by a quarter: it was attached pretty closely to the stomach.

“Of the intestinal canal the *duodenum* was the largest in circumference; it gradually diminished to the average measure, which was rather more than half an inch, that of the large intestines, if we may so call them, being scarcely so much. The length of the small intestines was 1 foot; that of the large, 8 inches. The stomach was somewhat oval, and the œsophageal and pyloric orifices were distant only 3 lines; the measurement of the greater curvature was $2\frac{3}{4}$ inches; the circumference, when moderately distended, $2\frac{1}{4}$. The *cæcum*, somewhat enlarged at its base, was about $1\frac{3}{4}$ inch in length, and terminated in a blunt *apex*.

The kidneys were compressed in form, and half an inch in length; the *tubuli* converged in one large distinct conical *papilla*. The supra-renal glands were closely attached to their upper and inner part, and were of the size of small peas.

“The lungs consisted of two lobes on the left, and three on the right side. The heart was pointed; its length being half an inch.

“The tongue was pointed, and 1 inch in length: its surface was velvety, with soft, small, delicate *papillæ*.

“The thyroid glands were oval, and little larger than pin-heads.

“The submaxillary glands were large.

“The *œsophagus* was smooth on its internal surface.

“The *trachea* consisted of nineteen or twenty rings.

“The sexual organs were next examined. The length of the *penis* from the *pubes* was 1 inch; the *erectores* muscles were large and

long; the *testes* were oval, and as large as sparrows' eggs, being $\frac{3}{4}$ of an inch in length, in breadth $\frac{1}{2}$ an inch, in thickness 3 lines; the *epididymis*, 3 lines in length, was somewhat club-shaped; the *cremaster* muscle was very strong; the length of the cord to the abdominal ring was $\frac{3}{4}$ of an inch; the total length of the *vasa deferentia*, $1\frac{1}{2}$ inch; they terminated internally at the root of the *vesiculæ seminales*, that is, between them and the bladder; the *vesiculæ seminales* were small and tubular, with a turn at the extremity; from their entrance to the bulb of the *urethra* $\frac{1}{2}$ an inch.

“ Being desirous to ascertain whether the arteries of the extremities manifested any approximation in their arrangement to what obtains in the *Loris gracilis*, Geoffr., and the Sloth, *Bradypus tridactylus*, Linn., I injected the subclavian and femoral with mercury. The distribution was found to be similar to that of other *Quadrumana*, and without the slightest approach to the plexiform condition which was observed in the *Loris*. The arterial trunks were in fact simple, giving off muscular branches in the usual manner, as they proceeded.

“ The muscles of the limbs, and especially those of the thighs, were remarkably large and firm, conveying an idea of far greater strength than would be suspected in so small and delicate an animal.”

September 22, 1835.

William Yarrell, Esq., in the Chair.

Some extracts were read from a Letter addressed to the Secretary by M. F. Cuvier, For. Memb. Z. S., and dated Paris, September 15, 1835. Among other zoological notices contained in it were some remarks on the dentary systems of the three approximating genera of *Herbivorous Rodentia*, *Ctenomys*, Blainv., *Octodon*, Benn., and *Pœphagomys*, F. Cuv. M. F. Cuvier states that the teeth of the former are destitute of true roots.

A Letter was read, addressed to the Secretary by J. B. Harvey, Esq., Corr. Memb. Z. S., and dated Teignmouth, September 9, 1835. It accompanied some dried specimens of the animal of *Serpula tubularia* of Dr. Turton, which were forwarded by the writer with the view of demonstrating that the *Patella tricornis*, Turt., is in reality an appendage to that animal, serving as an *operculum* to its shelly tube—a fact which, subsequently to his description of the supposed new species of *Patella*, Dr. Turton appears himself to have suspected. The appendage described as the *Pat. tricornis* is in reality the covering of the dilated extremity of the single developed *tentaculum* in the *Serpulidous* animal forming the shell characterized by Dr. Turton as the *Serp. tubularia*: a similar covering is met with in the animals of all the species of *Vermilia*, Lam., and *Galeolaria*, Ej.; but not in those of the genus *Serpula* as restricted by Lamarck.

Mr. Harvey states that “Two days ago an industrious young naturalist, Mr. H. Glossop, of Isleworth, who has accompanied me on many dredging excursions, noticed an unusual, as he thought, horny substance upon the worm of a *Serpula tubularia*, which was adhering to a shell in salt water, and on examination it proved to be the *Patella tricornis* of Dr. Turton. We have since pulled out and examined above a hundred of these *Serpulæ*, all living specimens, and have found an *operculum* upon each of them. I am going to sea again on Saturday, and in a few days it is my intention to send you several living specimens, that you may satisfy yourself and the Society on this subject: I will forward them by the mail, with a bottle of sea-water in the basket, that you may preserve them alive for a day or two.”

Mr. Bennett called the attention of the Meeting to a specimen of a *Crocodile* which he had regarded, while it was living in the Society's Gardens, as referrible, on account of the length of its head and the extent of the shielding at the back of its neck, to the *Crocodilus*

cataphractus, Cuv. A more close examination of it, however, subsequently to its death, had shown him that its head was still more prolonged than that part is described to be in *Croc. cataphractus*, its length being to its breadth as 3 to 1, instead of as $2\frac{1}{2}$ to 1: it is also deficient of the second post-occipital series of four small plates noticed as occurring in *Croc. cataphractus*. On these accounts principally he stated that he considered it as representing a previously undescribed species, which he characterized as

CROCODILUS LEPTORHYNCHUS. *Croc. rostro elongato, capitis latitudine longitudinis partem tertiam aequante; scutis post-occipitalibus ovalibus parvis duobus, nuchalibus per paria quatuor cataphractis, cum dorsi seriebus continuis.*

Long. tot. 27 unc.; cranii, $4\frac{5}{8}$; cranii, ad maxillarum commissuram, lat. $1\frac{7}{8}$.

Hab. apud Fernando Po.

Dentes in maxillâ superiore quatuordecim, in inferiore quindecim.

Notwithstanding the approximation of this species to the *Gavials* by the elongation of its jaws and by the extent to which the back of the neck is protected by bony plates, it has all the essential generic characters by which the *Crocodiles* are distinguished. The two posterior pairs of nuchal plates are much smaller than the two pairs anterior to them.

The animal having been anatomically examined subsequently to its death, the following notes were prepared by Mr. Martin of his dissection of the *Crocodylus leptorhynchus*.

“The length from the *anus* to the nose was 1 foot 2 inches; from the *anus* to the tip of the tail, 1 foot 1 inch; that of the *ramus* of the lower jaw, $5\frac{1}{2}$ inches.

“The musk-gland described by Mr. Bell was very small; and the peculiar muscle embracing it and running to the *os hyoides* was so delicate and slender that it was only to be followed with extreme care: the gland contained a small portion of creamy matter scented very strongly of musk.

“The serous cavities (of which, in his account of the *Croc. acutus*, Mr. Owen gives a detail,) may be described as follows. A serous membrane constitutes a sort of *pericardium*, to which the heart is secured at its *apex* by the membrane reflected from its own surface: from this pericardiac membrane is reflected an expansion, forming a distinct serous cavity on the anterior surface of each lobe of the liver: the *pylorus* and gall-bladder are in a separate serous cavity: and so is the anterior part of the stomach, the membrane passing from the *parietes* of the *abdomen* on the left side, uniting with the under part of the stomach, and being reflected over its surface. Besides the cavities on the liver alluded to, there is another on the right lobe at its *dorsum*, very extensive, and formed by a process of the *pleura*: but the *pleura* is not

continued to the left lobe. The intestines occupy their own serous cavity: but below the *pubes* a distinct serous cavity contains the anterior part of the *cloaca* or genito-urinary reservoir. The peritoneal or serous membrane does not invest the kidneys, but is reflected over their anterior (abdominal) surface.

“ The peritoneal canals were very easily made out. They opened on each side of the base of the *penis*, by two orifices capable of admitting the point of a fine blow-pipe. In the *Croc. acutus* Mr. Owen found them to allow barely of the passage of an eye-probe; but in the present animal, small as it was, they were far larger; still it appeared to me that they could not serve the purpose suggested by M. Geoffroy St. Hilaire. Can they be intended to allow of the escape of any gaseous secretion, any aeriform fluid, which may fill the abdominal serous cavity, and be expelled under certain circumstances, as, for instance, when the animal seeks the deep bed of the lake or river?

“ The stomach was globular and flattened, with a glistening tendinous patch on each side, as large as a shilling, or nearly so. The entrance of the *œsophagus* and the pyloric *appendix* were close together, the *appendix* being about as large as a good-sized horse-bean: from this the *duodenum*, emerging, formed a double fold; that is, a fold formed by two lengths of intestine put together, and bent upon themselves, embracing within the outer line, as in *Birds*, the *pancreas*, a long thin gland, one portion of which was continued a short distance along the free portion of the intestine, where it became more thick, and ended abruptly. Further to the right, but in close contact with this duodenal fold, lay the spleen, a grey flattened rounded cake; it was touched by the lower edge of the right lobe of the liver, and was totally surrounded by *peritoneum*, which attached it by a narrow riband or slip to the *duodenum*, below the entrance of the biliary ducts: along this riband ran a large vein, going from the spleen to the *vena porta*: a small artery was also visible. The gall-bladder, of an oval shape, and 1 inch long, entered the *duodenum* at the termination of the outer folded layer, just where it began to be free, by a duct half an inch in length. The pancreatic duct I could not succeed in tracing, but it certainly did not enter with the biliary. In the *Croc. acutus* it enters a quarter of an inch beyond that duct.

“ It may be remarked that the stomach contained no pebbles or stones, but merely a little mucus. In a specimen of *Croc. acutus* subsequently examined the stomach was distended with undigested lumps of flesh, and a vast quantity of Indian corn, swallowed most probably in lieu of pebbles: the grains were hard, and quite unaltered.

“ The liver consisted of two distinct masses or lobes, of a triangular figure; and it was between them, but on the edge of the right, that the gall-bladder was situated.

“ The *duodenum* was rather larger in circumference than the rest

of the small intestines, which were in a worm-like range of convolutions, on a process of *peritoneum* that expanded like a fan from the spine: at the root of this mesentery I found the gland described by Mr. Owen, but of moderate size, and dark coloured; its diameter about half an inch. The total length of the small intestines was 4 feet 8 inches. They entered the *rectum* (for to this were the large intestines reduced,) by a valvular or sphincter-like aperture, the *parietes* of which were firm, thick, and muscular. The *rectum* suddenly enlarged on the reception of the small intestines, the length of this *viscus* being barely 2 inches; its internal membrane was longitudinally plicated. The portion which I have denominated *rectum* entered into a large *cloaca*, or genito-urinary cavity, its entrance being surrounded by a large fleshy *sphincter*, similar to that around the entrance of the small intestine into the *rectum*.

“The *cloaca* was itself divided into two chambers, by a valvular fold: the upper division was large; the anal one small. The breadth of the *meso-rectum*, 1 inch. The *ureters* entered just above the valvular fold alluded to. The *urine* opaque and white, as in *Birds*.

“The *penis* was small, being only half an inch in length; it lay curled up, and its *apex* was cleft horizontally, one point being elongated, and bending over the other, so as to produce a resemblance in miniature to the flower commonly known as the *Snap-dragon*,—*Antirrhinum majus*.

“The kidneys consisted of two oval bodies, with flattened surfaces, having their venous ramifications symmetrically disposed, running horizontally across from a median line, so that each kidney had no unapt resemblance to some of the fossil fern leaves: the *ureters* emerged from a cleft in the centre of the lower *apex* of each kidney, and were of considerable circumference; their length was 1 inch.

“At the upper *apex* of the kidneys, and partly upon them, lay the *testes*, two red elongated slender bodies, of a tolerably firm consistence. In length they were about 1 inch, and each extremity was pointed.

“Over the yellow wrinkled skin which covered the tongue or muscular expanse between the *rami* of the lower jaw, numerous small glandular orifices were thickly dispersed, whence exuded a viscid saliva or mucus. The *pharynx* was closed by the cartilaginous expansion of the *os hyoides* described by M. Geoffroy Saint Hilaire in the 2nd volume of the ‘*Annales du Muséum*,’ which, by its arrangement, forms a gular valve, its free edge pressing against a sort of *velum pendulum*, or semilunar fold of the palate, which advances anterior to the posterior *nares*. Considerably behind this gular valve is situated the *glottis*, the *rima* of which, like that of a *Bird*, is unfurnished with an *epiglottis*; unless, indeed, the gular valve be considered in this light, its use being to prevent the ingurgitation of water both into the tracheal tube and the *œsophagus*; so that the animal can breathe, provided the nostrils are just above the water,

though the jaws be open beneath the surface. The *trachea* is a straight simple tube; it was found in this animal to consist of fifty rings before its bifurcation, its length being $3\frac{1}{4}$ inches. A little below the bifurcation, on each side, was a small glandular body, similar to that seen in *Birds*, just where the *trachea* enters the *thorax*. The bifurcations were observed to run a considerable distance into the substance of the lungs before they blended into it.

“Though differing in a few minor points, the visceral anatomy of this species bore, on the whole, a close resemblance to that of the *Croc. acutus*, of which the details given by Mr. Owen are already published in the ‘Proceedings of the Committee of Science and Correspondence’ of this Society, Part I. pp. 139 and 169.”

A specimen was exhibited of the *Stanley Crane*, *Anthropoides paradisaicus*, Bechst.; and Mr. Yarrell called the attention of the Meeting to the conformation of its *trachea*, which corresponded perfectly with the one figured by him in the ‘Linnean Transactions.’ He remarked, that as the present *Bird* had lived for upwards of three years in the Society’s Menagerie, it seemed probable, from this coincidence of form, that no increase in the extent of the fold of the *trachea* is occasioned by increasing age.

The reading was concluded of an anatomical description, by Mr. Reid, of the *Patagonian Penguin*, *Aptenodytes Patachonica*, Forst.

“The specimen, an adult male, whose dissection forms the subject of the following paper, was captured at East Falkland Isle, in latitude $51^{\circ} 32'$ south, by Lieutenant Liardet, R.N., and was brought to England in H.M.S. Snake, and presented by that gentleman to P. C. Blackett, Esq., by whose kind permission I was allowed to examine it in detail: the results of this dissection I now beg respectfully to lay before the Society. Owing, however, to the length of time which had elapsed subsequently to its capture, and to the manner of its preservation (in rum),—together with a wound on the inferior part of the neck, and others in the mouth, added to several bruises,—part of my description will not be so perfect as could be desired.

“The bones are very hard, compact, and heavy, having no apertures for the admission of air; but they contain, especially the bones of the extremities, a thin oily marrow. The *foramina* for the transmission of the blood-vessels of the bones are small. The *periosteum* is thick and fibrous.

“The *cranium* is short and broad, and is united into a single bone, with very little appearance of suture or harmony: superiorly it is flattened; posteriorly, towards the *occiput*, it is rounded; it declines obliquely forwards; and when it attains the front of the orbits it is suddenly truncated to meet the superior mandible.

“The orbits are large, and separated only by membrane. Above each orbit there is a *fossa*, which is deeper and broader behind than

in front, and which ends suddenly at its union with the orbital process of the temporal bone. External and inferior to the termination of the transverse ridge of the occipital bone there is a process. The temporal bone has two processes: the tympanic, situated immediately anterior to the last-named process; and the orbital, situated immediately behind the posterior part of the orbit. The basilar process of the occipital bone is short, ending posteriorly in a single round, prominent condyle, which articulates with the *atlas*. The body of the sphenoid is lengthened, and its pterygoid processes form separate bones. The tympanic bones have the internal process much produced. The *jugum* is very long and thin, attached as usual to the tympanic and superior maxillary bones. The palatine bones are long and thin, meeting posteriorly the pterygoid, and anteriorly the superior maxillary bones.

“The upper jaw is immoveable: the superior mandible long, slender, and a little arched at the point. The apertures for the nostrils are long and narrow. The bones of the superior mandible are of the usual form. The superciliary bones are wanting. The lachrymal bones are small, and fixed to the *cranium*. The turbinated *laminæ* are small, soft, and cartilaginous.

“The lower jaw is long and slender, and composed of three pieces, viz., the body of the bone and its two articulating portions. The coronoid processes are very small. The condyloid process is not elevated above the body of the bone. There is a process produced posteriorly for the attachment of the pterygoid muscles.

“The *os hyoides* has the lateral *cornua* much lengthened, passing upwards posteriorly to the occipital bone, then curved forwards for a short distance upon the temporal bone.

“The vertebral column consists of

Cervical <i>vertebræ</i>	13
Dorsal ———	9
Sacral ———	12
Caudal ———	8

—
In all 42

“The *atlas* is of the usual shape. The *processus dentatus* of the second *vertebra* is flattened laterally; the posterior spinous process short, and the anterior long. The articulating processes are inferiorly produced, as are those of all the cervical *vertebræ*: in the lower of them the processes diverge less than in the upper ones. The posterior spinous process of the third, fourth, fifth, sixth, and thirteenth *vertebræ* is long: in the remainder this process is short. The transverse processes are short in all except the twelfth and thirteenth *vertebræ*, in which they more nearly correspond with the processes of the dorsal series. The articulation of the bodies of the *vertebræ* is effected as usual. The sixth *vertebra* has the transverse processes extended downwards as much as they may be without the

free motion of the neck being impeded: in the seventh, eighth, ninth, tenth, eleventh, and twelfth these processes gradually shorten, and in the twelfth and third can hardly be said to be produced: they lengthen in the fourth and fifth, and in the sixth reach the maximum. In the sixth *vertebra* we notice the commencement of two processes proceeding from the superior part of the anterior face of the *vertebræ*, a little external to the median line, which give firm attachment to the muscles of the neck: in the succeeding *vertebræ* these processes are more fully developed till they reach the tenth, after which we observe no trace of them; but instead of them, in the eleventh, twelfth, and thirteenth we have a very prominent anterior spinous process: in the two last it is bifid. In the last (the thirteenth) the transverse processes are extended laterally, and are curved acutely backwards, leading immediately to the shape of the dorsal *vertebræ*.

“ These are nine in number. The first has very extensive motion: in the second the motion is much diminished: and the diminution of motion is continued as far as the seventh *vertebra*, the last two having no motion whatsoever. The posterior spinous processes have less development than is usual in most *Birds*. The anterior ones are very little produced. The transverse processes do not overlap each other. The oblique processes strongly resemble those of the neck. In the first *vertebra* the anterior spinous process is most prominent, and in the second, third, fourth, fifth, and sixth the process is bifid and less prominent.

“ The sacral region is composed of twelve bones, all ankylosed together, of which the upper four might almost be regarded as lumbar, for they are unconnected to the *ilia*, except by ligament. The *canalis vertebralis* is broadest in the tenth of these *vertebræ*.

“ There are eight caudal *vertebræ*, each furnished with transverse and spinous processes, and also, on their anterior face, with two processes arising one on each side of the median line, measuring in length, on an average, 6 lines. The eighth, or last, is in length 2 inches, conical, with the base towards the body, and having the tip scabrous, for the insertion of muscle: on the superior part of the anterior face there is a groove extending about one third of its length. About half an inch from the tip there is a thickening of substance, giving the appearance of the tip having been originally separate. The *canalis vertebralis* extends a short way down the bone. The seventh *vertebra* is united to the eighth by ankylosis.

“ The ribs are nine in number, and of the usual form: the two upper ones are not connected with the *sternum*. The oblique processes are situated halfway between their vertebral and sternal extremities. They commence cartilaginous at the inferior margin of each rib, and are about 5 lines broad at their origin: towards their termination they spread laterally to the width of 1 inch. As they approach the lower rib they get gradually thinner. In the first and last rib they are totally wanting. The last rib, at its centre, has a

surface concave externally, produced by the action of the thigh. The sterno-costal bones are seven in number: the last one curved suddenly at its costal end.

“ The body of the *sternum* is long. The keel is much developed at its top, and forms a very acute angle posteriorly, terminated by a small line. The space for the attachment of the middle pectoral muscle is considerably larger than that for the attachment of the great pectoral. On each side of the keel there is a large space, terminating inferiorly in one, owing to the shortness of the middle layer compared with the lateral ones. The keel terminates abruptly inferiorly. The ensiform process has a ridge in the middle, along which and the inferior edge of the keel a membrane was attached (which separated in maceration). The external layers of the bone are, as has been already incidentally noticed, much longer than the middle one: they curve inwards toward each other, and are tipped with cartilage. The sternal *fossa* is large and very distinct. The sternal *apophyses* are very large.

“ The coracoid bones are long, strongly formed, and smooth anteriorly; the margin much produced at the superior internal edge, and the ends furnished with long hamuliform processes, extending upwards and downwards. The superior one is attached to the clavicle by the intervention of ligament. The upper part of the *os coracoïdes* is bent upon itself at an angle greater than a right angle. They are larger at their inferior ends, the inner ends being produced and curved forwards. The glenoid cavity of the bone is situated on the exterior posterior part, and is formed by this bone and the *scapula*, about three fifths of the cavity being formed by the *os coracoïdes*.

“ Each clavicle is turned downwards, and is broader near the coracoid bone, and tapering to the front, where there is a protuberance formed by the junction of the clavicles: this protuberance does not touch the *sternum*. Posteriorly they give off a flat conical process, which goes down internally to the coracoid bone, and is united to the process situated on the posterior part of the *scapula*, immediately inferior to its head.

“ The *scapula* is remarkably broad and thin: its neck and head rounded. There are three articulating processes in this bone: one with the *furculum*; another with the coracoid bone; and the third with the *humerus*.

“ On comparing the *sternum* and adjacent bones with the *sterna* of some nearly allied *Birds*, we find less development of the keel in the *Loon*, and less development of the lateral wings in the *Auk*, and more in the *Spheniscus*. The differences will be best shown by the following tables:

	<i>Colymbus Glacialis.</i>	<i>Alca Torda.</i>	<i>Spheniscus demersa.</i>	<i>Aptenodytes Patachonica.</i>
	inch. lin.	inch. lin.	inch. lin.	inch. lin.
Length of the body of the } <i>sternum</i> }	5 3	4 10	5 10	7 0
Length of the lateral wings . .	3 9	4 0	6 5 n.	8 0
Length of its keel	5 0	5 4	6 5	8 0
Length of the ensiform process	1 n. 0	0 3	0 3	1 2 n.
Length of the sternal <i>apophysis</i>	0 3	0 2	0 9 n.	1 0
Half the breadth of the bone } at its superior margin . . }	1 6	0 10	1 7	2 4
Height of the keel at the su- } perior part }	1 n. 0	1 4 n.	1 8	1 9
Projection of the keel, su- } perior to the body of the } <i>sternum</i> }	0 3	0 8	1 3	2 0
Length of the <i>os coracoides</i> . .	2 0	1 8	3 3	5 10
Length of the <i>scapula</i>	2 3	2 10	6 5	7 7
Breadth of the <i>scapula</i> at its } neck }	0 3	0 2	0 7 n.	0 8
Breadth near its inferior angle	0 3 n.	0 2	1 9 n.	2 1 n.

or, in integral parts, the length of the centre of the *sternum* being taken as unity :

	<i>Colymbus.</i>	<i>Alca.</i>	<i>Spheniscus.</i>	<i>Aptenodytes.</i>
Length of the middle of the } <i>sternum</i> }	1	1	1	1
Length of the lateral wings . .	$\frac{1}{2} \frac{3}{1}$	$\frac{2}{2} \frac{4}{9}$	$1 \frac{1}{10}$ n.	$1 \frac{1}{7}$
Length of the keel	$\frac{5}{2} \frac{0}{1}$	$1 \frac{3}{2} \frac{9}{9}$	$1 \frac{1}{10}$ n.	$1 \frac{1}{7}$
Length of the ensiform process	$\frac{4}{2} \frac{1}{1}$ n.	$\frac{1}{2} \frac{3}{9}$ n.	$\frac{3}{5} \frac{8}{8}$ n.	$1 \frac{2}{7}$ n.
Length of the sternal <i>apophysis</i>	$\frac{1}{2} \frac{1}{1}$	$\frac{1}{2} \frac{1}{9}$	$\frac{1}{7}$	$\frac{1}{7}$
Breadth of the superior margin	$\frac{6}{2} \frac{1}{1}$	$\frac{5}{2} \frac{0}{9}$	$\frac{2}{7}$ n.	$1 \frac{3}{7}$
Height of the keel	$\frac{4}{2} \frac{1}{1}$ n.	$\frac{3}{2} \frac{9}{9}$	$\frac{2}{7}$	$1 \frac{3}{7}$
Projection of the keel above } the body of the bone . . }	$\frac{1}{2} \frac{1}{1}$	$\frac{1}{2} \frac{1}{9}$	$1 \frac{3}{4}$	$\frac{2}{7}$
Length of the <i>os coracoides</i> . .	$\frac{2}{2} \frac{1}{1}$	$\frac{1}{2} \frac{0}{9}$	$\frac{3}{7}$ n.	$1 \frac{0}{7}$
Length of the <i>scapula</i>	$\frac{2}{2} \frac{1}{1}$	$\frac{1}{2} \frac{7}{9}$	$1 \frac{1}{10}$	$1 \frac{1}{7}$ n.
Breadth at its neck	$\frac{1}{2} \frac{1}{1}$ n.	$\frac{1}{2} \frac{0}{9}$	$1 \frac{1}{10}$ n.	$1 \frac{1}{7}$ n.
Breadth at its inferior angle . .	$\frac{1}{2} \frac{1}{1}$	$\frac{1}{2} \frac{0}{9}$	$\frac{3}{7}$ n.	$\frac{2}{7}$ n.

“ The *humerus* is much flattened. On its posterior aspect there is a large *foramen*, situated under, and occupying the whole of the internal part of its head, which is in form crescentic from before backwards: over the internal and posterior part of it a groove passes. The distal end of the bone has two tubercles for articulation. There are two prominent *trochleæ* on its posterior surface, on which work the two sesamoid bones of the elbow-joint. The form of the larger of these is flattened, and of the smaller trapezoid, with truncated edges.

“The *ulna* is very thin and flat, not quite so long as the *humerus*, rounded slightly at its upper extremity, and still less at its lower one. Its head has a cavity, which receives the posterior tubercle of the *humerus*. Immediately inferior to this is a prominence on the posterior margin, to which is attached the ligament of the two sesamoid bones. The superior ulno-radial joint admits of little motion, being composed of a convex and plane surface. Near the distal extremity of the bone there are several rough lines for the attachment of muscles. The distal articulating surfaces are three: one with the *radius* anteriorly; another with the first carpal bone inferiorly; and the third with the second carpal bone posteriorly and obliquely downwards.

“The *radius* much resembles the *ulna* in shape. At its head it has two articulations: one superiorly, with the anterior tubercle of the *humerus*; and the other posteriorly, for articulation with the *ulna*. There are likewise two articulations at its distal extremity: posteriorly one for the *ulna*; and inferiorly there is another with the first carpal bone. Near its neck is situated a process for the attachment of muscles. On its superior anterior part a groove runs obliquely, from before backwards, and from above downwards. At the distal extremity there is a similar one, but running in a contrary direction; i. e. from behind forwards.

“The first carpal bone has the form of a trapezium, with three articulating surfaces: a superior one for the *radius*; a posterior one for the *ulna*; and an inferior one for the *metacarpus*. The shape of the second carpal bone is triangular, with articulating processes, and a notch on its inferior edge: one anteriorly for the *ulna*; the other inferiorly for the *metacarpus*.

“The *metacarpus* is composed of a single bone, formed by the union of two. The anterior of the two metacarpal bones supports two *phalanges* of the first finger, and is twice the size of the posterior one, which supports the single *phalanx* of the second finger. The upper end is crescentic, articulated with the first carpal bone anteriorly, and with the second inferiorly. There is a *sulcus* between the ends of the two bones, at their inferior extremity.

“The first *phalanx* of the first finger is a long, broad, and flat bone, tapering gradually from above downwards, united to the *metacarpus* by a flat surface, and connected with the second *phalanx* by a similar articulation. The other *phalanx* is broad and flat, tapering from above downwards. By a similar articulation is attached to the posterior metacarpal bone a *phalanx*, which is flat, long, and tapering from above downwards, superiorly giving off a process which passes upwards for a short distance on the posterior part of the metacarpal bone.

“The bones of the *pelvis* are so much shortened behind that they throw the centre of gravity in a perpendicular line with the *vertebræ*. The length of the *ilia* behind the cotyloid cavity is one third of the length of the body in a *Gull* (*Larus*); one half in the *Loon*;

and not quite one fourth of the length of the trunk in the *Patagonian Penguin*. The sacro-sciatic notch is a complete *foramen*. The pubic bones are long and feeble; they are turned forwards and tipped with cartilage. The cotyloid cavity is a perfect *foramen*, with a large process at its postero-inferior part tipped with cartilage, and articulated with the *trochanter major*. The thyroid *foramen* is not complete, except by the intervention of a ligament which separates it from the *obturator foramen*. As there is no *iliacus internus*, the superior part of the *os ilium* extends upwards, and lies close to the ribs.

“The *os femoris* is formed as usual, the head being flattened anteriorly, the neck short and thick, the *trochanter major* smooth on its superior posterior surface, and articulated with the process on the *ilium*. Besides the posterior there is also an anterior *linea aspera*. There is a process external to the external condyle, having its inferior surface tipped with cartilage, which acts as a pulley. On its infero-external surface there is a sharp edge. The condyles are not much everted.

“The shape of the *patella* is peculiar. There are two articulating surfaces posteriorly: one which would form part of a large crescent, and which has a prominence for the condyles of the *femur* in its centre; the other, inferior, is likewise crescentic; it is very narrow, and articulated by ligaments to the tubercle of the *tibia*.

“The superior surface of the *femur* has a *crista* in its centre, of an ovoid form: the posterior edge truncated. The internal surface is perfectly flat: the oblique slightly marked with a ridge, and looks downwards. There is a groove on the centre of the anterior edge which also passes obliquely downwards on the external side: these two sides are truncated at their junction.

“The *tibia* is nearly twice the length of the *femur*: the tubercle is elevated above its head, and forms a broad short conical truncated process. On the anterior part of the head there is a large groove, deepest at the top, and passing obliquely downwards and inwards: the outer side is here smooth for articulation with the *fibula*. It has inferiorly two condyles, articulated with the *metatarsus*, having a *foramen* above and between them for the transmission of tendon, &c.

“The *fibula* is in the form of a lengthened cone, and is attached to the outer surface of the *tibia*: for about two thirds of its length it is ankylosed to that bone inferiorly. It has the usual quantity of surfaces for the attachment of muscles.

“There is no *tarsus*.

“The *metatarsus* has two articular depressions on its posterior surface for the reception of the condyles of the *tibia*. It represents three pulleys for articulation with the *phalanges*. On the inner part of the superior face is situated the metatarsal bone of the first toe, connected by ligaments to the large bone. There is a *fossa* on the superior surface, between the first and second, and second and third

bones of the *metatarsus*: this gradually decreases in size and increases in depth, till it perforates the bone, and joins the *fossa* on its inferior surface, where, immediately anterior, internal, and inferiorly to the outer depression on its head, there is a large protuberance forming the inner boundary to a groove. The phalangeal end is formed as in most *Birds*. The first toe, which is the smallest in the foot, has three bones, all of which are flattened, and have simple articulations, the last one having a nail. The metatarsal bone is only connected to the others by muscle: the whole length of the toe is 1 inch: the second toe has three *phalanges*: the third has four: and there are five belonging to the fourth toe. All are formed as is usual in this class.

“ The ligaments of the head and trunk are of the usual form.

“ In addition to these a ligament arises from the sesamoid bones of the elbow-joint, which passes to the external or dorsal side of the *carpus*, where it is tied down; it again passes forwards, and is attached by separate slips to the joint and head of the first part of the *metacarpus* and to the first *phalanx* of the first finger; and is inserted into the second about 3 lines from its head.

“ The ligaments of the hip-joint are as usual.

“ Besides the usual ligaments of the knee-joint there is one which arises together with the crucial, and is attached to the *patella* half-way down the central line. The form of the semilunar cartilages is crescentic, with prolonged horns.

“ The ankle-joint has semilunar cartilages of the usual form.

“ There are superior and inferior annular ligaments belonging to the *metatarsus*.

“ In no other instance is there any deviation from the usual form.

“ There is a very large *bursa* situated within the knee-joint.

“ The muscles were of a dark red colour, very tough, and having a great deal of cellular membrane amongst them. The *fascia* were very thick and strong. In no instance did I observe any tendency to ossification in the tendons. In the tendons of the *perforatus* of the first and second toes there was a sesamoid bone, scarcely equalling in size a mustard-seed.

“ The *panniculus carnosus* is very thick and strong, and is divided into three pieces. The first division arises muscular from the lateral parts of the skin of the shoulder, back, and under the wing; from the *fascia* of the muscles of the back; tendinous along the superior edge of the *furculum*; tendinous from the *fascia* covering the muscles of the shoulder; muscular from the blubber over the shoulder-joint; and by a small head from the inferior part of the cervical *fascia*: it passes upwards, uniting anteriorly and posteriorly to its fellow, and is attached, muscular, into the superior transverse ridge of the occipital bone, and to the posterior third of the sides of the lower jaw. The second portion arises from the dorsal *fascia* by five irregular fleshy slips: it passes downwards, and is attached to the blubber covering the back and sides, sending forwards a membra-

nous slip, which is attached to the skin of the *abdomen*. The last portion arises fleshy from the tubercle of the *tibia*, and from the peroneal *fascia*: and, covering the abdominal muscles, is attached very firmly to the skin of the *abdomen*, sending off two slips, which unite with their fellows over the central line.

“The *occipito-frontalis* is small, arising posteriorly from the *panniculus carnosus*, and inserted anteriorly into the frontal bone, just above its junction with the superior *maxilla*. The *orbicularis palpebrarum* arises from the anterior part of the orbit, immediately anterior to the situation of the lachrymal bones, and is inserted into the orbital process of the temporal bone, from the inferior half of which a muscle arises, passing downwards under the eye, and attached to the inferior part of the optic *foramen*, sending off a slip, which is attached immediately anterior and internal to the orbital process of the temporal bone. There is most motion in the inferior eyelid.

“Round the entrance of the external *meatus* of the ear there are some muscular fibres observable, but as the part was much bruised, I was unable to separate them: they seem to act as a sphincter.

“The *masseter*, *temporalis*, and *pterygoideus* arise as usual, as does also the zygomatic.

“On the fore part of the neck there are two muscles: one arising from the superior edge of the *furculum*, near its union with the *os coracoides*, and from the recurved portion of the coracoid bone, and inserted into the temporal *fascia*; the other arising tendinous from the superior internal part of the *furculum*, and attached to the outer and posterior part of the tympanic bone.

“The tongue has a *hyoglossus* and *lingualis*, as usual.

“The muscles of the *os hyoides* and lower jaw are as usual.

“There is only one pair of muscles of voice.

“The *recti postici* and *antici*, *obliqui capitis*, *splenii capitis et colli*, *complexi*, *intertransversales*, *interspinales*, *transversalis colli*, *spinales dorsi et colli*, *trapezius*, *cucullaris*, *rhomboideus*, *biventer cervicis*, *trachelo-mastoideus*, *longus colli*, and *scaleni* muscles are large and well defined, arising and attached in the same manner as in most short-necked *Birds*, but especially resembling the muscles of the neck of the *Loon*; as do also the abdominal muscles, and those for the motion of the dorsal *vertebræ*, ribs, and tail.

“The muscles connecting the *scapula* to the trunk resemble those of the *Loon*, but have broader attachments, in proportion as the *scapula* of the *Penguin* is broader than that of the *Bird* referred to.

“The principal differences are in the muscles of the wing and leg.

“The muscles of the wing I shall now describe. The *pectoralis major* arises from the superior part of the *crista* and the external part of the body of the *sternum*, from the *fascia* of the *pectoralis minor*, from the cartilages of the ribs, and from the anterior part of the coracoid bone; over the *crista* it unites with its fellow of

the opposite side; it is inserted, muscular, into the anterior superior part of the *humerus*. The *pectoralis minor* arises from the lower part of the *crista* and the interior part of the body of the *sternum*, and from the inferior part of the *furculum* and coracoid bone; its tendon passes over the union of the three bones of the shoulder-joint, moving freely over them, and is inserted, tendinous, into the scabrous surface on the posterior part of the external side of the *humerus*, just below its head. The *coraco-brachialis* arises from the lateral angle of the *sternum* and base of the coracoid bone, and is inserted immediately posterior and a little superior to the *pectoralis minor*. The *subclavius* occupies the usual place, but is small. A muscle arises from the outer and upper fourth of the membrane between the *furculum* and *os coracoïdes*; it passes upwards, but internal to the capsular ligament of the joint; and is inserted, tendinous, immediately above the insertion of the *pectoralis minor*. Another muscle arises from the external inferior third of the *os coracoïdes*, from the angle and costal part of the *sternum*, and from the *fascia* of the *pectoralis major* for about the length of an inch; passing upwards it forms a round tendon about $\frac{3}{4}$ of an inch from the shoulder, which passes over the joint and under the *supra-spinatus*, and is inserted into the external edge of the *foramen* at the head of the *humerus*. The *supra-spinatus* is small, and arises fleshy from the superior edge of the *scapula*, near the glenoid cavity; it passes round and constricts the ligament of the joint, and is inserted, tendinous, into the *humerus*, immediately anterior to the muscle last named.

“I will here notice, before proceeding to the remaining muscles, a loop through which several of the muscles pass. It arises flat from the infero-anterior edge of the *scapula*, just below the glenoid cavity, and passing upwards and outwards for about an inch, is then doubled upon itself, and attached to the same part from whence it arose: there is no admixture of its fibres.

“A muscle arises from the *fascia* which covers the last rib and the outer edge of the external oblique, passes upwards and through the loop, and is inserted into the lower part of the external edge of the *foramen* situated at the posterior part of the head of the *humerus*. The *latissimus dorsi* arises from the last cervical and first five dorsal *vertebræ*, and forms a tendon, which passes through the loop and is inserted immediately below the preceding muscle. The *infra-spinatus* arises fleshy from the whole external surface of the *scapula* below the upper third, and is inserted into the large tubercle of the *humerus*. A muscle arises from that part of the inner edge of the *os coracoïdes* which is produced; it passes obliquely upwards and outwards behind the *os coracoïdes*, to which it is attached; and is inserted tendinous into the anterior tubercle of the *humerus*. The *deltoides* arises from the posterior part of the projecting edge of the *scapula*, and from the scapular process of the clavicle; passing over the shoulder-joint, it is inserted into the anterior part of the middle

tubercle of the *humerus*. The *subscapularis* arises from the internal surface of the *scapula*; it passes upwards, and is inserted into the posterior part of the middle tubercle of the *humerus*. The *teres minor* arises from the whole width of the posterior surface between the glenoid cavity and the end of the upper third of the *scapula*; it passes in the groove, and is inserted into the inferior part of the large tubercle of the *humerus*. Of the *triceps extensor cubiti* the long head arises immediately above the origin of the *teres minor*, and passing down on the external side of the *humerus*, it is joined by the second head, arising from the internal part of the large *foramen cæcum* of the *humerus*; these two unite about the middle of the arm, and are joined by the third head, which arises from the two inferior thirds of the posterior edge of the *humerus* till within 8 lines of the joint: it is now attached to the sesamoid bones of the elbow-joint, and to the *fossa* on the inferior parts of the posterior surface of the *os humeri*.

“ The *anconeus* arises from this muscle, and from the part of the bone below the origin of the third head, and is attached to the sesamoid bones anterior to the *triceps extensor cubiti*. Instead of a *biceps* and *brachialis internus*, there is a *triceps flexor cubiti*, the long head of which arises, tendinous, from the antero-interior part of the superior angle of the *furculum*, and, passing over the joint, is joined, at the union of the upper with the middle third of the *humerus*, by the fibres of the middle head, which arises fleshy from the *furculum* immediately behind the *foramen* formed by the union of the three bones of the shoulder passing on to join the long head; at the head of the *humerus* it is joined by the short head which arises from the anterior part of the *foramen cæcum*; when it reaches the superior part of the middle third of the *humerus*, it joins the other tendons, and then forms an *aponeurosis* over the elbow-joint, and is attached to the middle part of the *radius*. A muscle arises from the anterior superior edge immediately below the arterial groove on the lower part of the *humerus*; it passes directly downwards and is inserted into the radial extremity of the metacarpal bone and into the edge of the carpal ligament. The *flexor communis* arises from the internal side of the *humerus*, from the ligament of the elbow-joint, and from the superior part of the *radius* and *ulna*; it divides into two tendons, which go down in the interosseal space, passing under the *ligamentum carpi annulare posterius*, and are attached to the first and each succeeding *phalanx* of the two fingers about 5 lines below their articulations. The *extensor communis* has the same situation and number of attachments on the external or dorsal side of the *humerus*. There is a *pronator quadratus* arising as is usual in this class. There is also a muscle which arises from the anterior part of the *radius* at its distal extremity, and is inserted into the projection of bone formed by the *phalanx* of the second finger, and also, by a slip, into the internal part of the first *phalanx* of the first digit.

“ The muscles serving for the motion of the inferior extremity may be described as follows.

“ The *rectus* arises by a *fascia* from the spinous processes of the last three dorsal and two lumbar *vertebræ*, and muscular from the lower half of the external part of the *dorsum ilii* and sacro-iliac *symphysis*; and, passing over the neck of the thigh-bone, is inserted into the lower edge of the groove on the anterior part of the *patella*. The *tensor vagina femoris* arises by a *fascia* from the sacral *vertebræ*, passes over the cotyloid cavity and *trochanter major*, and turning to the anterior part of the thigh is joined by another head which arises immediately anterior to the cotyloid cavity; after this union they are inserted into the *fascia* of the thigh about halfway down. The *glutæus medius* at its origin occupies that part of the *dorsum* which extends between the origin of the *acetabulum* and the ridge situated in the centre, and passes downwards and is inserted into the *trochanter minor* and the ridge which joins it. The *glutæus minimus* arises from the whole of the *dorsum ilii* unoccupied by the other *glutæi* except its *crista*, and is inserted into the anterior part of the *trochanter major*. The *glutæus maximus* arises from the prominent ridge on the *os ilium* below the *acetabulum*; it passes on the posterior surface of the thigh-bone; and when it has passed below the head of the *tibia* it forms a round tendon and passes through a loop situated on the external posterior part of the *tibia*; continuing its course obliquely downwards, it is inserted into the scabrous ridge on the posterior surface of the *tibia* near its head. A muscle arises from the transverse processes of all the caudal *vertebræ* except the last, goes forwards, and is attached to the postero-internal edge of the *tibia* just below its head. Another muscle arises from the anterior part of the last caudal *vertebræ*, and is inserted into the external part of the *linea aspera* after its bifurcation. The *pyriformis* arises from the anterior oblique processes of the caudal *vertebræ*, from the tip of the *ischium*, and from the internal part of the *os pubis*; the fibres converge downwards, and are inserted into the intero-anterior ridge of the *tibia* just below the tubercle. The *semitendinosus* arises from the ridge immediately anterior to the *glutæus maximus*, and is inserted immediately inferior to the bifurcation of the *linea aspera* on its external division. The *gemi* arise from the *ischium* immediately posterior to its spine, and are inserted into the cavity posterior to the *trochanter major*. A muscle arises from the *ischium* anterior to the *gemi*, and is inserted into the intero-anterior ridge of the *tibia*, just below the *pyriformis*. Of the *triceps adductor femoris* the first head arises from the extero-inferior part of the *pubis*; the second head arises immediately above the first; and the third above the second, and from the interosseous ligament which unites the *pubis* and *ischium*: they join on the upper third of the thigh, and are attached to the *linea aspera* on its internal side and division. The *obturator internus* arises fleshy from the internal part of the *pubis*, from part of the *obturator foramen*, and from the *ischium*; it forms a tendon which passes through the thyroid *foramen*, is tied down to the joint, and is inserted into the anterior part of the great *trochanter*. A muscle arises from the

outer edge of the cotyloid cavity, passing outwards and a little upwards, and is inserted behind the *trochanter major*. Another muscle arises from the anterior part of the *acetabulum*, passing directly outwards, and is strongly attached to the ligament of the joint; it is inserted into the thigh-bone just below its neck.

“ A muscle arises from the interior and a small part of the anterior and posterior surfaces of the thigh-bone, from near its neck to the condyles, and forms a tendon which is inserted into the ridge at the anterior internal part of the *tibia* immediately below its head. The *cruralis* arises fleshy from all the superior and external parts of the bone not occupied by the former; one part is inserted into the whole of the superior surface of the *patella*, the remainder passes over the internal part of the *patella* and is attached to the internal side of the head of the *tibia*. A muscle arises by four heads: the first, tendinous, from the ridge behind the external condyle which formed the loop through which the *glutæus maximus* passed; the second, fleshy, from the internal side of the *triceps*; the third, from the inferior portion of the intero-anterior ridge of the *tibia*; the fourth, from the inferior internal edge of the *patella*; these two last join just below the origin of the third, and passing down tendinous are united to the two other tendons a little above the ankle-joint: it expands and flattens at the joint, and just below it divides into two tendons, the internal of which is inserted into the internal edge of the groove on the plantar surface of the metatarsal bone, while the external tendon is inserted into the external head of the same bone. Another muscle arises from the postero-inferior part of the cotyloid cavity, passes forwards on the exterior part of the thigh and over the groove on the *patella*, and is attached on the interior part of the head of the *tibia*. The tendon of the *flexor perforatus* is composed of four muscles, which unite just above the ankle-joint. The first arises by two heads, one from the outer surface of the external, and the other from the inner side of the internal condyle; about the end of the upper third of the *tibia* this forms a tendon, which passes down to the place of junction with the others: the second has also two heads, one from the posterior part of the head of the *fibula*, and the other immediately below the attachment of the *glutæus maximus*; the muscle forms its tendon just below the middle of the bone, and passes forwards and joins that of the first muscle: the third has one origin between the two condyles, and forms its tendon at the middle of the leg, passing on and joining the two former; the fourth muscle arises immediately above the third, and forms its tendon like the rest, joining them above the ankle: after the tendons are united they are distributed as usual. The *flexor perforans* consists of two heads; the first arises from the back part of both condyles; the second arises from the superior and posterior third of the *tibia*, *fibula*, and interosseous ligament: they unite about halfway down the bone and form a tendon, which passes in the groove of the plantar surface of the metatarsal bone, and is distributed in the usual manner. A muscle arises from

the scabrous surface situated on the internal part of the posterior face of the *tibia* about halfway down that bone, and forms a tendon which is attached to the upper part of the internal edge of the groove in which runs the tendon of the *perforans*. Another muscle arises from the external condyle, from the *patella* on its anterior surface, and from the fibres of the *rectus femoris*; it covers the *tibia* and fills up the space between it and the *fibula*, and forms a tendon which passes through the *foramen* situated at the anterior surface of the *tibia* between its condyles, under the capsular ligament of the ankle-joint, and is attached to the prominence situated between the second and third portions of the metatarsal bone near its tibial extremity.

“A muscle arises from the anterior and external parts of the head of the *fibula*; it becomes tendinous about halfway down the leg, passes under the annular ligament, and is inserted into the external side of the metatarsal bone near its postero-inferior angle: another slip goes under the foot and forms the plantar *fascia*. Another muscle arises from the anterior inferior surface of the *patella*, and from the whole of the *fossa* and its edges on the head of the *tibia*, passes downwards, and is tied down by the annular ligament; and has the same distribution as in the *Loon* and *Gull*, except that the tendon is more closely tied down, smaller, and not so round. Another muscle arises fleshy from the whole anterior part of the *fibula*, interosseous ligament, and part of the external side of the *tibia*; it forms its tendon near the ankle-joint, and is attached to the postero-external angle of the *metatarsus* on its plantar surface. There are also four muscles arising from the metatarsal bone, one on each side, and one in the *fossæ* between the three portions of the metatarsal bone: they all arise near the tibial end on its superior surface, and are attached to the *phalanges* of the first, second, and fourth fingers. The thumb has three muscles: an *extensor*, on its superior surface; a *flexor*, on its inferior; and an *abductor*, on its internal surface; all attached to the tibial end of the *metatarsus* as usual.

“The diaphragm consists of twelve narrow fleshy slips, which arise, six on each side, from the internal surface of the ribs: near their angle they pass upwards, and are inserted tendinous into the thin transparent membrane covering the lungs. The blood-vessels pass in front of it.

“The circulatory system corresponds exactly with that of the *Loon*, except in the origin and distribution of the arteries of the stomach. The *cæliac* artery comes off on a level with the fifth rib; it passes a little forwards, and divides into the *coronaria ventriculi*, the hepatic, and the splenic. The *coronaria ventriculi*, just after its origin, divides into the superior and inferior coronaries: the superior passes round the large curvature of the stomach, and near the *pylorus* gives off the superior pyloric and left hepatic; the inferior passes down the right side of the stomach, and disappears at the *pylorus*, being here minutely ramified upon it. The hepatic gives off the right gastro-epiploic, which goes on the inferior angle of the sto-

mach, and the right gastric, which goes on the *pylorus* and superior part of the stomach, anastomosing with the superior pyloric and inferior coronary arteries. The splenic gives off a small artery distributed on the cardiac portion of the stomach, and some *vasa brevia*, which are distributed to the left portion of the stomach.

“Not wishing to mutilate the skeleton, I did not examine the brain; but from the number, size, and situation of the *foramina* in the base, and the whole contour of the *cranium*, the brain must be presumed to be very nearly similar in proportional quantity and structure to those of the *Loon* and *Gull*.

“The nerves are distributed as usual. The brachial plexus is composed of the last cervical and first two dorsal nerves, and of a filament from the last spinal nerve but one in the cervical region. The sciatic is composed of the five superior or anterior pairs of pelvic nerves.

“The nose is organised similarly as in others of this class. The cartilaginous *laminæ* of the turbinated bone are concentric, and thirteen in number.

“The eye has six muscles, which arise and are attached as usual. The lachrymal gland is placed at the postero-superior part of the orbit, and is large in proportion to the globe of the eye. It sends off several ducts; I think seven; but the part being much injured, I found it impossible to ascertain their precise number and origin: one, however, opened immediately under the anterior part of the *membrana nictitans*. Two other ducts also opened below this membrane, passing from the Harderian gland, which was situated at the inferior part of the orbit. The nasal gland occupied its usual situation, partly in the anterior and superior portion of the orbit, and partly in the *fossa* of the frontal bone: its duct passed forwards under the bridge of bone, and then bifurcated, one division of it ending on the cartilaginous *laminæ* of the *ossa turbinata*, and the other going forwards, and lying on the bone: I was not able to trace it further.

“The *membrana nictitans* is large and strong: it is moved by a *pyramidalis* and a *quadratus* muscle.

“The globe of the eye is large, as compared with the *cranium*. The sclerotic is less osseous than I have yet found it in any *Bird*. The optic nerve enters at the postero-inferior part of the sclerotic. The *cornea* is small, owing to the large space occupied by the sclerotic. Under the *cornea* lies the *membrana aquatica*, consisting of a thin membrane, adhering to the edge of the *iris*. This membrane was first observed, together with the *tunica cellularis*, by Mr. Blackett, in 1802, in the eye of the *Cat*, the preparation of which was sold in the first part of Mr. Brookes’s Museum. The *tunica cellularis* in this animal is rather pulpy, but, on the application of *liquor potassæ*, it dissolved, and displayed a cellular structure. Mr. Blackett demonstrated this membrane to me in 1832, since which time I have observed it in all the eyes I have examined; but, owing to the diffi-

culty in obtaining specimens, I have not been able to make sufficiently extensive researches to justify the demonstration of the membrane as one of the proper tunics of the eye. There appears to be a *marsupium nigrum*. The *retina* is very thick and strong.

“The absorbent system is more perfect than in most *Birds*. Of the thoracic ducts, the left is the largest. There are a femoral and two axillary glands; also an extra pair of bronchial glands more than in the *Loon* or *Gull*. The coccygeal glands are 2 inches 3 lines long, and 9 lines broad.

“There is a gular pouch, which measures in length 4 inches, and in breadth 8 lines.

“The tongue is set with cartilaginous *papillæ* directed backwards.

“There is only one pair of salivary glands; the submaxillary.

“The structure and proportion of the lungs are the same as in the *Water Birds* generally. The air-cells are few in number, and small, and are filled by openings from the lungs, or from one cell to another. They consist principally of the internal air-cells; one above the *furculum*; and the axillary, abdominal, and femoral rows.

“The liver, spleen, and *pancreas* are large.

“The *œsophagus* is straight, and 1 inch and 5 lines in width. It is infundibuliform, so that when it reaches the stomach it is 2 inches and 4 lines wide: the *infundibulum* contained the beaks of cuttle-fishes and gravel.

“The stomach is muscular, small, and glandular, and of the shape of an egg. The *duodenum* is broad at its origin, and at about $3\frac{1}{2}$ inches from its commencement the biliary and pancreatic ducts enter. The gall-bladder is 6 inches long and 2 inches in circumference; it is attached to the under side of the liver, and, gradually diminishing in diameter, it passes over the stomach, and is inserted into the intestine, without the intervention of any duct.

“The *testes* were large, as were the supra-renal glands and kidneys. I did not observe any difference from the usual structure and proportions in any other parts.

“The small intestines measured 22 feet 6 inches in length, and were about the thickness of the little finger. There were attached to them two *cæca*, each measuring about 1 inch 3 lines in length, which were of the same diameter as the intestines. The great intestines were somewhat larger than the small. The measurements of the stomach and the intestines were as follows:

	Feet.	Inches.	Lines.
Length of the <i>œsophagus</i>	0	10	0
Breadth at the <i>pharynx</i>	0	1	6
————— <i>infundibulum</i>	0	2	4
Length of the <i>infundibulum</i>	0	10	0
Breadth at the junction of the <i>infundibulum</i> with the stomach	0	6	0
Length of the stomach	0	4	0
Width of ditto	0	2	6

	Feet.	Inches.	Lines.
Length of the <i>duodenum</i>	1	3	0
Circumference of ditto	0	4	0
Length of the small intestines, inclusive of the <i>duodenum</i>	22	6	0
Length of the <i>cæca</i>	0	1	3
Circumference of the <i>cæca</i> and the small intes- tines.....	0	2	6
Length of the large intestines	0	6	0
Circumference of ditto	0	2	9

“The total length of the individual examined, measured over the back, was 3 feet 2 inches and 6 lines; the length of the neck, 11 inches and 9 lines; that of the trunk, 1 foot 1 inch and 9 lines.”

The reading of Mr. Reid's communication was illustrated by the exhibition of the skeleton of the specimen of the *Patagonian Penguin* described by him, and of preparations of many of the *viscera*, the whole forming part of the collection of Mr. Blakett.

October 13, 1835.

Richard Owen, Esq., in the Chair.

Mr. Bennett called the attention of the Meeting to a *Pteropine Bat* which had recently been obtained from the neighbourhood of the river Gambia, and which was exhibited. He directed especial notice to two large tufts of white hairs placed upon its shoulders and forming a very conspicuous feature in its appearance. These, he remarked, might probably cover cutaneous glands destined for the preparation of a secretion fitted to defend that part of the animal in its passage through the air, or perhaps to attract the opposite sex. It could scarcely be conceived that they have any influence in increasing the buoyancy of the animal; although the backward position of the wings might seem to render necessary such a supplemental aid: their position in advance of the ordinary alar membranes gives them, in fact, some resemblance to supplementary wings.

He stated that on account, chiefly, of the position of the wings so far backward as almost to seem to be placed behind the centre of gravity, he was disposed to consider that the *Bat* exhibited might be regarded as the type of a new genus, to which the name of *Epomophorus* might be given. But the genus would, he conceived, rest almost entirely on this single character, and he hesitated to propose it definitively until he had an opportunity of examining a specimen preserved in spirit, and consequently not liable to that distortion to which the individual skin exhibited might have been subjected. In one of the two other species of *Pteropi* previously obtained from the same country by Mr. Rendall, and brought under the notice of the Society on July 14 (page 100) by Mr. Ogilby, the same backward position of the wings exists. In dentary characters the new species agrees with those just referred to, the only exception being in the presence of a third abnormal incisor on the left of the upper jaw.

Regarding it as a form of some interest to zoologists, Mr. Bennett stated his intention to describe it more fully in a paper which he proposed to prepare on the subject. He characterized it as the

PTEROPUS EPOMOPHORUS. *Pter. pallidè brunneus, posticè pallidior; ventre albido; scopa humerali albà magna.*

Long. tot. $6\frac{3}{4}$ poll.; *capitis*, $2\frac{3}{4}$; *expansio alarum*, 12.

Hab. in regione Gambiensi.

Professor Agassiz, at the request of the Chairman, explained his views of the affinities and distribution of the *Fishes* of the family *Cyprinidæ*.

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He commenced by remarking that among the genera referred by Cuvier to this family there were several, such as *Pæcilia*, *Lebias*, &c., which possessed maxillary teeth and a large number of branchiostegous rays. These genera, he conceived, ought to be excluded from the *Cyprinidæ*; and the family be considered as limited to fishes with mouths destitute of teeth, and having few branchiostegous rays.

To the family thus reduced the nearest affinities appeared to him to be the genera *Atherina* and *Mugil*. In internal organization the *Cyprinidæ* agree nearly with those genera; and this consideration, M. Agassiz conceives, is of much higher importance in the natural arrangement than the external character founded on the presence or absence of spinous rays in the dorsal and other fins. The affinity of the *Cyprinidæ* to the *Siluridæ* he regards as extremely doubtful: and although from the bearded *Carps* to the bearded *Siluri* there appears to be a natural transition by means of the bearded *Loaches*, it is important to distinguish that in these latter, as well as in the *Carps* and other *Cyprinidæ*, the beards, as they are called, are merely processes of the skin; while in the *Siluri*, the *cirri* of the angles of the mouth are actually prolongations of the maxillary bones, becoming gradually cartilaginous and tapering into thread-like extremities.

In the subdivision of the *Cyprinidæ*, M. Agassiz regards the form of the fins, and especially of the dorsal and anal, as furnishing indications of the highest value; and the form of the pharyngeal teeth as affording the characters next in importance. He first distinguishes the group comprising the genera *Anableps*, *Cobitis* and *Botia*, the latter established by Mr. Gray for the reception of those *Loaches* in which the suborbital bone is armed with a moveable spine. He then distinguishes another group comprising four genera: 1. *Cyprinus*, in which the pharyngeal teeth are large, and, when worn, resemble the molars of some *Rodent Mammalia*, such as the *Hare*; 2. *Barbus*, in which there are three rows of lengthened conical hooked teeth on each side of the *pharynx*; 3. *Gobio*, in which the pharyngeal teeth have the same form as those of the *Barbels*, but are more slender, and constitute only two rows; and 4. *Tinca*, the pharyngeal teeth of which are club-shaped, rounded at the end, and placed in a single row. In the genus *Leuciscus*, which M. Agassiz limits to *Leuc. Alburnus* and three allied species, the mouth is cleft obliquely, and the teeth, consisting of elongated cones, are disposed in four rows. From these the *Cyprinus Nasus* is to be generically distinguished as possessing six rows of pharyngeal teeth: its mouth is transverse and inferior, with the edges cutting. A third genus, containing many species, also requires to be distinguished, as having only two rows of teeth, one of which is hooked: in these the opening of the mouth is rounded. There remains the genus *Abramis*, distinguished by its long anal fin, in which the teeth are bevilled off and have

a cutting edge: of this genus eight species are known to Professor Agassiz.

In this enumeration of the genera of *Cyprinidae* M. Agassiz limited himself to the European forms, and scarcely adverted to any but European species.

In illustration of his views preparations were exhibited of the pharyngeal teeth of *Cyprinus*, *Barbus*, and other genera, from the collection of Mr. Yarrell.

October 27, 1835.

William Yarrell, Esq., in the Chair.

At the request of the Chairman, Mr. Burton exhibited, with the permission of Sir James M^cGrigor, Bart., specimens of many *Birds* which had recently been presented to the Museum of the Army Medical Department at Chatham. He particularly pointed out among them the following which he regarded as hitherto undescribed, and for which he proposed the names and characters subjoined.

NOCTUA BRODIEI. *Noct. brunnea*; capite fasciâque gulari pallidè rufo strigatis guttatisque, dorso, alis, pectore, ventreque pallidè rufo fasciatis; mento, collo, et regione postauriculari albis; fasciâ cervicali latâ nigro albo rufoque varid; secundariis maculâ albâ notatis; caudâ brunneâ, subtùs pallidiore, fasciis septem rufis angustis ornatâ; femoribus albis brunneo variis.

Long. tot. $6\frac{1}{2}$ poll.; corporis $4\frac{1}{4}$; caudæ $2\frac{1}{4}$; tarsi 1.

Rostrum album.

Hab. apud Montes Himalayenses.

The colouring of this bird bears a general resemblance to that of *Noct. Cuculoides*, Gould; but the peculiar cervical collar, the diminutive size, and some other characters forbid its being identified with that species.

It is dedicated to Sir Benjamin Brodie, Bart., V.P.R.S., &c., in token of high respect and ancient friendship.

PHŒNICURA MACGRIGORIÆ. *Phæn. capite, collo, dorso, scapularibus, rectricumque pogoniis externis saturatè cæruleis; fronte, regione superciliari, uropygioque cæruleis; remigibus rectricumque pogoniis internis brunneis; mento regioneque præoculari nigris; collo utrinque maculâ cæruleâ bellè notato; pectore ventreque brunneis, hoc pallidiore.*

Long. tot. $5\frac{1}{2}$ poll.; corporis, $3\frac{1}{4}$; caudæ, 2; tarsi, $\frac{3}{4}$.

Rostrum nigrum; pedes brunnei.

Hab. apud Montes Himalayenses.

This graceful bird is named in honour of the only daughter of Sir James M^cGrigor, Bart., M.D., F.R.S., Director General of the Army Medical Department.

SYLVIA? CASTANEO-CORONATA. *Sylv. corpore suprâ, alis, caudâque*

olivaceis ; capite genisque castaneis ; subtùs flavo, olivaceo tincto, gulâ nitidè flavâ ; alis caudâque subtùs remigumque pogoniis internis brunneis ; caudâ minimâ.

Long. tot. $3\frac{1}{4}$ poll. ; corporis, $2\frac{1}{8}$; tarsi, 1.

Mandibula superior nigra, inferior alba ; pedes pallidi.

This bird is provisionally retained in the genus *Sylvia* ; but the imperfect development of the tail, and the length and strength of the toes, more particularly of the posterior one, will probably at some future time render it the type of a new genus.

SYLVIA BURKII. Sylv. corpore suprâ flavescenti-viridi, subtùs flavo ; capite maculis elongatis irregularibus nigrescentibus duabus nebuloso ; alis prope flexuram seriebus duabus punctorum flavorum obsoletorum fasciatis ; remigum pogoniis internis brunneis ; caudâ brunneâ præter rectricum externarum duarum pogoniis internis albis.

Long. tot. 5 poll. ; corporis, 3 ; caudæ, 2 ; tarsi, $\frac{3}{4}$.

Mandibula superior nigrescens tomio apiceque albis, inferior alba ; pedes albescentes.

Hab. apud Montes Himalayenses.

This bird is named in honour of Dr. Burke, Inspector General of Hospitals, Principal Medical Officer of the King's Army in India, by whom these birds were presented, and who has enriched the Museum with an extensive collection in ornithology from Northern India.

ÆGITALUS FLAMMICEPS. Æg. capite flammeo ; dorso scapularibusque flavescenti-viridibus ; uropygio viridescenti-flavo ; alis flavo viridi brunneo albidoque variis ; remigibus rectricibusque brunneis, pogoniis internis viridescensibus, ad apices albo ciliatis ; gulâ flammeâ, in flavum ad pectus transeunte ; ventre flavescenti albido ; alis subtùs albis, nisi externè et internè.

Long. tot. $3\frac{3}{4}$ poll. ; corporis, $2\frac{1}{4}$; caudæ, $1\frac{1}{4}$; tarsi, 1.

Rostrum nigrum, mandibulæ superioris tomio nisi ad apicem albo ; pedes nigri. Alæ caudam longitudine subæquantes ; remigibus 2dâ 3tiâque longioribus. Caput subcristatum.

Hab. apud Montes Himalayenses.

Two species of this genus are already known and described, *Æg. Smithii* and *Æg. pendulinus* : the present therefore forms the third of M. Boié's subdivision.

GENUS SYLVIPARUS.

Rostrum parvulum, brevissimum, compressum nisi ad basin ; mandibulæ æquales, superior paululum ad apicem arcuata ; nares plumis setaceis tectum.

Pedes ut in genere *Paro*.

Alæ longiores, fere ad extremam caudam extensæ, remige 1mâ verâ brevior, 2ndâ, 3tiâ, et 4tâ æqualibus et longissimis, 5tâ his paulo brevior, 6tâ primam æquante.

Cauda mediocris, æqualis.

SYLVIPARUS MODESTUS. *Sylv. corpore suprâ brunnescenti-viridi, subtùs viridescenti-albido; remigibus reetricibusque brunneis, pogoniis externis flavescenti-viridi ciliatis.*

Long. tot. 4 poll.; corporis, $2\frac{1}{4}$; caudæ, $1\frac{3}{4}$; tarsi, $\frac{5}{8}$.

Rostrum pedesque nigrescentes.

Hab. apud Montes Himalayenses.

It is reluctantly proposed to institute a new genus in a family already sufficiently complicated; nevertheless, as this bird combines the characters of *Sylvia*, *Regulus*, and *Parus* in its wing, tail and bill, it is deemed necessary to make it the type of a genus of which more species will probably be discovered as our intercourse with the remote regions from whence it is derived becomes more extended.

PICUMNUS INNOMINATUS. *Pic. corpore suprâ flavescenti-viridi, subtùs sordidè albo maculis nigris conspicuis in fascias ad ventrem lateraque confluentibus notato; fronte nigro aurantiacoque obscurè fasciato; remigibus brunneis, pogoniis externis flavescenti-viridi ciliatis; reetricibus intermediis nigris, cæteris albo nigroque fasciatis; colli lateribus brunneis, lined albâ supra oculum oriente alterâque sub oculum et inde ad scapulam ductis ibique confluentibus.*

Long. tot. 4 poll.; corporis, $2\frac{3}{4}$; caudæ, $1\frac{1}{2}$; tarsi, $\frac{1}{2}$.

Rostrum nigrum albo basin versus varium; pedes brunnei.

Hab. apud Montes Himalayenses.

This is the only species of *Picumnus* yet discovered in the Old World.

Mr. Burton also exhibited a fine specimen of that splendid bird, *Eurylaimus Dalhousii*, Wils., likewise from the Chatham collection, of which only two other specimens are known to exist in Europe.

Various specimens of *Fishes* and other marine animals, collected by J. B. Harvey, Esq., Corr. Memb. Z.S., on the south coast of Devonshire, were exhibited: and Mr. Yarrell called the attention of the Meeting to them, and to the *Fishes* in particular, remarking on their characters and habits, and on the peculiarities of their internal structure.

A note by Mr. Allis of York, forwarded through Mr. Bell, was read.

It referred to the statement made by Mr. Martin at the Meeting on February 10, 1835 (page 17), that in the *Adjutant*, *Ciconia Argala*, Vig. and Childr., and in the *common Heron*, *Ardea cinerea*, Linn., no less than in the *Pelicans*, the *os furcatum* is united by bone to the anterior *apex* of the keel of the *sternum*. After remarking that this statement is at variance with his experience, Mr. Allis proceeds thus:—"I have prepared a skeleton of the *Adjutant*; two of the *purple Heron*; two *Storks*; three of the *common Heron*; one *common Bittern*; one *little Bittern*; one American small *green Heron*; a British *Crane*; and a Polish *Crane*. Among all these the *Cranes* are the only birds where there is true osseous union between the *furculum* and the keel: and in the *Cranes* the *furculum* is rather a forked elongation of the keel than a distinct bone. Out of more than two hundred birds' skeletons which I have mounted, the *Pelican* is the only other bird where the *furculum* and *sternum* form one bone. The *Cormorant* and the *Gannet* have the *furculum* resting on the apex of the keel like the *Adjutant* and the *Heron*s, but there is no bony junction. I think the specimens of Mr. Martin must have been extremely old birds, or that the bone must have been injured at the point of union, and that the osseous union was formed in consequence of that injury. The *Heron*'s skeletons which I have myself prepared are by no means young birds; but I suppose extreme old age would be very likely to form a bony junction between bones pressing so close to each other as they do in this case.

"It may be thought singular that I should prepare duplicates of the skeleton of so common a bird as the *common Heron*. The reason is, that two of the skeletons exhibit curious specimens of nature's reparation of broken limbs, and the third is a singular instance of malformation. The *sternum* of the *Heron* is united to the vertebral column by four short ribs which are attached to four of the largest of the long ribs: this specimen has the usual number of short ribs; but one of them is placed so far forward on the *sternum* as to be quite out of the reach of any of the vertebral or long ribs; and the last of the four long ribs which is usually attached to one of the short or sternal ribs, wanting its usual support, is attached by cartilage to the rib immediately preceding it."—T. A.

A Note from Mr. Martin, on the same subject, was subsequently read.

Mr. Martin admits the incorrectness of his previous statement as regards the *Adjutant* and the *common Heron*; but remarks that the union, although not effected by bone, is yet so close as probably to have nearly the same physiological consequence as if ankylosis had actually taken place. When considering the *sternum* and *os furcatum* of the *Pelican* as structurally bearing upon the bird's powers of flight, he looked for analogies of the structural point in question among

birds of ample wing, and of slow but untiring flight. Observing them in the birds to which he had before referred, he did not accurately draw the line of distinction between ankylosis, and a firm and close attachment with only thin cartilage intervening between the bones. With regard to the effects produced upon aerial progression, he conceives that, *cæteris paribus*, it is immaterial whether the union be that of ankylosis or not, provided the junction be firm and intimate.

Mr. Martin thinks it, however, probable that in the *Adjutant*, when old, a bony union may take place; the junction between the *os furcatum* and the *sternum* in the Society's skeleton of this bird being so close as almost to admit of its being regarded as a kind of suture. In an adult example of the *Stanley Crane*, *Anthropoides paradisæus*, Bechst., where the ankylosis between these bones is fairly perfected, he finds traces of the obliteration of a similar mode of union.

Referring to Mr. Allis's remark that in the *Cranes* the *os furcatum* is rather a forked elongation of the keel than a distinct bone, Mr. Martin observes that the ankylosis which takes place in those birds does not render the *os furcatum* less a distinct bone in reality than where its union is by cartilage or suture; for in these latter cases it is only by an arrest of the process of ossification—a natural arrest, it is true—that ankylosis has not been effected.

Mr. Gould, at the request of the Chairman, exhibited drawings of ten species of *Ramphastidæ* which had become known to him since he published, in 1834, his 'Monograph' of that family. Several of these birds had already been brought under the notice of the Society. He now named and characterized the remaining ones as follows.

RAMPHASTOS CITREOPYGUS. *Ramph. tectricibus caudæ superioribus sulphureis.*

Long. tot. 20 poll.; rostri, $5\frac{1}{4}$; alæ, $9\frac{1}{4}$; caudæ, 6; tarsi, 2.

Hab. in Brasilia?

DESCR. Rostrum (pro corporis ratione) minus, nigrum, fasciâ basali culmineque prope basin flavis. Pectus albidum flavescente tinctum. Torques pectoralis coccinea latiuscula. Orbitæ tarsique plumbei, hi saturatiores.

RAMPHASTOS OSCULANS. *Ramph. rostro nigro, culmine fascidque basali stramineis; pectore in medio aurantiaco.*

Long. tot. 18 poll.; rostri, $4\frac{1}{2}$; alæ, $7\frac{1}{2}$; caudæ, $6\frac{1}{2}$; tarsi, $1\frac{1}{4}$.

Hab. in Brasiliâ.

DESCR. *Ramph. culminato*, Gould, quam proximè accedit. Pectus aurantiacum, latera versus in flavum transiens; gula regioque parotica albæ. Torques pectoralis subangustata.

PTEROGLOSSUS PLURICINCTUS. *Pter. gastræo flavo, fasciâ pectorali nigra, alterâque subventrali anticè nigra posticè coccinea.*

Long. tot. 20 poll.; rostri, $4\frac{1}{2}$; alæ, $6\frac{1}{2}$; caudæ, $8\frac{1}{2}$.

Hab. in Brasiliâ.

DESCR. *Pter. regali*, Licht., affinis. Rostrum ad basin lineâ elevatâ flavâ cinctum: maxillæ superioris culmen, linea intrabasis, tomiique pars posterior nigra; latera aurantiaco-flava apicem versus pallescentia: maxilla inferior nigra. Caput collumque nigra; fœminæ regio parotica castanea, fasciaque guttur posticè cingens coccinea. Pectus et venter maculis indistinctis sparsis coccineis notati. Femora olivacea.

PTEROGLOSSUS HUMBOLDTII, Wagl. *Pter. gastræo flavo; mandibulâ inferiore nigra, superiore flavescente, culmine, apice, lined prope basin, serraturarumque maculis transversis nigris.*

Long. tot. 16–17 poll.; rostri, 4; alæ $5\frac{1}{2}$; caudæ, $6\frac{3}{4}$; tarsi, $1\frac{3}{8}$.

Hab. in Brasiliâ.

DESCR. *Pter. inscripto*, Swains., maximè affinis, sed major. Rostrum majus, magisque productum: mandibulæ superioris lituræ omnes angustiores.

PTEROGLOSSUS NATTERERI. *Pter. ventre flavo, femoribus castaneis, crisso coccineo; rostro rubro, culmine, macula prope basin utriusque mandibulæ, plurimisque subtransversis ad serraturas nigris.*

Long. tot. $13\frac{1}{2}$ poll.; rostri, $2\frac{5}{8}$; alæ, $5\frac{1}{2}$; caudæ, 5; tarsi, $1\frac{1}{2}$.

Hab. in Brasiliâ.

DESCR. *Pter. maculirostri*, Licht., admodum affinis, in sexu utroque. Rostri colores toto cœlo diversi: sicut et ventris femorumque.

PTEROGLOSSUS REINWARDTII, Wagl. *Pter. ventre aurantiaco castaneo tincto, crisso coccineo; culmine rostrique dimidio apicali nigrescenti-brunneo, basali rufescente.*

Long. tot. 12–13 poll.; rostri, $2\frac{1}{2}$; alæ, 5; caudæ, $5\frac{3}{4}$; tarsi, $1\frac{1}{4}$.

Hab. in Brasiliâ.

Præcedenti valdè affinis. Rostrum magis elongatum, coloribusque maximè diversum: prope basin mandibulæ superioris tomium nigro trimaculatum. Rectrices intermediae quatuor brunneo apiculatæ: in *Pter. Nattereri* et *Pter. maculirostri*, rectricum sex intermediarum apices similiter notati sunt.

PTEROGLOSSUS LANGSDORFFII, Wagl. *Pter. ventre castaneo, crisso coccineo; rostro nigrescenti-brunneo basin versus pallescente.*

Long. tot. $13\frac{1}{2}$ poll.; rostri, $2\frac{3}{4}$; alæ, $5\frac{3}{4}$; tarsi, $1\frac{1}{2}$.

Hab. in Brasiliâ.

DESCR. *Pter. Culik*, Wagl., affinis. Rostri ad basin ventrisque color alius. (Rectricum apices desiderantur.)

PTEROGLOSSUS PAVONINUS, Mus. Mun. *Pter. suprâ prasinus, subtus pallidior, crisso reetricumque apicibus brunneis; rostro infernè et ad basin nigro.*

Long. tot. 13-14 poll.; *rostri*, vix $3\frac{1}{2}$; *alæ*, $5\frac{1}{4}$; *caudæ*, $5\frac{1}{2}$; *tarsi*, $1\frac{1}{4}$.
Hab. in Mexico.

DESCR. *Pter. prasino*, Licht., propemodo affinis. Rostrum nigrum, ad basin lineâ aurantiacâ cinctum; mandibula superior pro maximâ parte apicem versus flava in cœruleo-viridem supernè transiens.

Mr. Gould concluded by stating that it was his intention immediately to publish, as a supplement to his 'Monograph of the *Ramphastidæ*,' the drawings which he had laid before the Meeting. Of that family thirty-three species are now known to him, which may be distinguished by the following Synoptic Table of the species of

RAMPHASTIDÆ.

I. Caudâ breviorè, quadratâ: rostro maximo. *Nigri; gutture caudæque tegminibus discoloribus.*—RAMPHASTOS.

Caudæ tegminibus superioribus flavis vel flavescentibus.

Pectore albo.

Rostro ut plurimum nigro, lateribus compressis 1. *culminatus*.

— convexis 2. *Cuwieri*.

———— rubro. 3. *erythrorhynchus*.

Pectore pallidè lutescente. 4. *citrepogus*.

———— flavo. 5. *osculans*.

Caudæ tegminibus superioribus albis.

Pectore albo 6. *Toco*.

———— flavo.

Rostro pluricolore 7. *carinatus*.

———— obliquè dimidiatim flavo 8. *Swainsonii*.

Caudæ tegminibus superioribus coccineis.

Rostro nigro.

Auribus albis 9. *vitellinus*.

———— pectori concoloribus,

(sc. flavis) 10. *Ariel*.

Rostro viridescente. 11. *dicolorus*.

II. Caudâ longiorè, gradatâ: rostro majore. *Viridescentes; capite, gastræo, tegminibusque caudæ superioribus in plurimis discoloribus.*—PTEROGLOSSUS.

Gastræo bi-vel pluri-colore, coloribus discretis.

Pectore ventreque flavis, fasciatis.

Fasciâ ventrali coccineâ, latâ.

Maxillæ superioris lateribus sordidè albis . . .	1. <i>Aracari.</i>
————— obliquè dimidiatis nigris . . .	2. <i>castanotis.</i>
Fasciâ ventrali anticè nigrâ posticè coccineâ.	
Pectore maculâ nigrâ notato .	3. <i>regalis.</i>
————— torquelatâ nigrâ cincto.	4. <i>pluricinctus.</i>
Pectore coccineo.	
Torque pectorali vel nullâ vel angustâ, flavâ	5. <i>bitorquatus.</i>
————— latissimâ, nigrâ .	6. <i>Azaræ.</i>
Pectore ventreque flavis, haud fasciatis.	
Maxillâ superiore dimidiatim flavâ et aurantiacâ	10. <i>viridis.</i>
————— flavâ, nigro inscriptâ.	
Maxillâ inferiore nigrâ	11. <i>Humboldtii.</i>
————— superiori concolore	12. <i>inscriptus.</i>
Pectore gutturi concolore, ventre discolore.	
Maxillâ superiore nigro maculatâ, albescente	13. <i>maculirostris.</i>
ut plurimum rubrâ.	
apice concolore	14. <i>Nattereri.</i>
————— nigrescente	15. <i>Reinwardtii.</i>
Maxillis nigris,	
basin versus rubris	16. <i>Culik.</i>
paullum cinerascens	17. <i>Langsdorffii.</i>
Gastræo unicolore, vel subunicolore.	
Gastræo stragulo discolore.	
Gastræo flavo, rubro intermixto .	7. <i>ulocomus.</i>
————— cœruleo-cano	8. <i>hypoglaucus.</i>
————— flavo	9. <i>Bailloni.</i>
Gastræo stragulo subconcolore.	
Crisso discolore.	
Mandibulæ superioris basi flavescente	18. <i>prasinus.</i>
————— nigro	19. <i>pavoninus.</i>
Crisso concolore.	
Uropygio concolore.	
Rectricum apicibus concoloribus	20. <i>sulcatus.</i>
————— intermediarum duarum apicibus castaneis .	21. <i>Derbianus.</i>
Uropygio coccineo	22. <i>hæmatopygus.</i>

The latter five of the above species are referrible to the genus proposed by Mr. Gould, on December 23, 1834, (Proceedings, Part ii. p. 147.) under the name of *Aulacorhynchus*.

The following "Observations on the Habits, &c. of a male *Chimpanzee*, *Troglodytes niger*, Geoff., now living in the Menagerie of the Zoological Society of London, by W. J. Broderip, Esq., V.P.Z.S., F.R.S., &c.," were read:—

"The interesting animal whose habits in captivity I attempt to describe, was brought to Bristol in the autumn of this year by Capt. Wood, from the Gambia coast. The natives from whom he received it, stated that they had brought it about one hundred and twenty miles from the interior of the country, and that its age was about twelve months. The mother was with it, and, according to their report, stood four feet six inches in height. Her they shot,—and so became possessed of her young one; and those who have seen our animal will well understand what Dr. Abel means, when, in his painful description of the slaughter of an Asiatic *Orang* (*Pithecus Satyrus*, Geoff.), he observes that the gestures of the wounded creature during his mortal sufferings, the human-like expression of his countenance, and the piteous manner of his placing his hands over his wounds, distressed the feelings of those who aided in his death, and almost made them question the nature of the act they were committing. During the period of his being on ship-board, our *Chimpanzee* was very lively. He had a free range, frequently ran up the rigging, and showed great affection for those sailors who treated him kindly.

"I saw him for the first time on the 14th instant, in the kitchen belonging to the Keeper's apartments. Dressed in a little Guernsey shirt, or banyan jacket, he was sitting child-like in the lap of a good old woman, to whom he clung whenever she made a show of putting him down. His aspect was mild and pensive, but that of a little withered old man; and his large eyes, hairless and wrinkled visage, and man-like ears, surmounted by the black hair of his head, rendered the resemblance very striking, notwithstanding the depressed nose and the projecting mouth. He had already become very fond of his good old nurse, and she had evidently become attached to her nursling, though they had been acquainted only three or four days; and it was with difficulty that he permitted her to go away to do her work in another part of the building. In her lap he was perfectly at his ease; and it seemed to me that he considered her as occupying the place of his mother. He was constantly reaching up with his hand to the fold of her neck-kerchief, though when he did so she checked him, saying "No, Tommy, you must not pull the pin out." When not otherwise occupied, he would sit quietly in

her lap, pulling his toes about with his fingers, with the same pensive air as a human child exhibits when amusing itself in the same manner. I wished to examine his teeth; and when his nurse, in order to make him open his mouth, threw him back in her arms and tickled him just as she would have acted towards a child, the caricature was complete.

“I offered him my ungloved hand. He took it mildly in his, with a manner equally exempt from forwardness and fear;—examined it with his eyes, and perceiving a ring on one of my fingers, submitted that and that only to a very cautious and gentle examination with his teeth, so as not to leave any mark on the ring. I then offered him my other hand with the glove on. This he felt, looked at it, turned it about, and then tried it with his teeth. His sight and his ordinary touch seemed to satisfy him in the case of a natural surface, but, as it appeared to me, he required something more to assure his senses when an artificial surface was presented to him; and then he applied the test of his teeth.

“At length it became necessary for his kind nurse to leave him; and after much remonstrance on his part, she put him on the floor. He would not leave her, however, and walked nearly erect by her side, holding by her gown, just like a child. At last she got him away by offering him a peeled raw potato, which he ate with great relish, holding it in his right hand. His keeper, who is very attentive to him, and whom he likes very much, then made his appearance, and spoke to him. Tommy (for by that name they call him) evidently made an attempt to speak too, gesticulating as he stood nearly erect, protruding his lips, and making a hoarse noise “hoo-hoo” somewhat like a deaf and dumb person endeavouring to articulate. He soon showed a disposition to play with me, jumping on his lower extremities opposite to me like a child, and looking at me with an expression indicating a wish for a game of romps. I confess I complied with his wish, and a capital game of play we had.

“On another occasion, and when he had become familiar with me, I caused, in the midst of his play, a looking-glass to be brought, and held it before him. His attention was instantly and strongly arrested: from the utmost activity he became immoveably fixed, steadfastly gazing at the mirror with eagerness and something like wonder depicted on his face. He at length looked up at me—then again gazed at the glass. The tips of my fingers appeared on one side as I held it—he put his hands and then his lips to them—then looked behind the glass—then gazed again at its surface—touched my hand again, and then applied his lips and teeth to the surface of the glass—looked behind again, and then, returning to gaze, passed his hands behind it, evidently to feel if there was anything substantial there. A savage would have acted much in the same way,

judging from the accounts given of such experiments with the untutored natives of a wild and newly discovered land.

“ I broke a sugared almond in two, and, as he was eating one half, placed the other, while he was watching me, in a little card-box which I shut in his presence—as soon as he had finished the piece of almond which he had, I gave him the box. With his teeth and hands he pulled off the cover, took out the other half, and then laid the box down. He ate the kernel of this almond, rejecting the greatest part of the sugary paste in which it was incased, as if it had been a shell: but he soon found out his error; for, another almond being presented to him, he carefully sucked off the sugar and left the kernel.

I then produced a wine-glass, into which I poured some racy sherry, and further sweetened it with sugar. He watched me with some impatience, and when I gave him the glass he raised it with his hands to his lips, and drank a very little. It was not to his taste, however, for he set down the glass, almost as full as he had taken it up; and yet he was thirsty, for I caused a tea-cup with some sugared warm milk and water to be handed to him, and he took up the cup and drained it to the last drop.

“ I presented him with a cocoa-nut, to the shell of which some of the husk was still adhering: the tender bud was just beginning to push forth—this he immediately bit off and ate. He then stripped off some of the husk with his teeth, swung it by the knot of adhering husk-fibres round his head, dashed it down, and repeatedly jumped upon it with all his weight. He afterwards swung it about and dashed it down with such violence that, fearing his person might suffer, I had it taken away. A hole was afterwards bored through one of the eyes, and the cocoa-nut was again given to him. He immediately held it up with the aperture downwards, applied his mouth to it, and sucked away at what milk there was with great glee.

“ As I was making notes with a pencil, he came up, inquisitively looked at the paper and pencil, and then took hold of the latter. Before I gave it up, I drew the pencil into the case, foreseeing that he would submit the pencil-case to examination by the teeth. Immediately that he got it into his possession, he put the tip of his little finger to the aperture at the bottom, and having looked at it, tried the case with his teeth.

“ While his attention was otherwise directed I had caused a hamper containing one of the *Pythons* to be brought into the room and placed on a chair not far from the kitchen dresser. The lid was raised, the blanket in which the snake was enveloped was opened, and soon after Tommy came gamboling that way. As he jumped and danced along the dresser towards the basket, he was all gaiety and life. Suddenly he seemed to be taken aback, stopped—

then cautiously advanced towards the basket, peered or rather craned over it—and instantly with a gesture of horror and aversion, and the cry of Hoo! hoo! recoiled from the detested object, jumped back as far as he could, and then sprang to his keeper for protection. He was again put down, his attention diverted from the basket, and, after a while, tempted to its neighbourhood by the display of a fine rosy-cheeked apple, which was at last held on the opposite rim of the hamper. But no—he would evidently have done a good deal to get at the apple; but the gulf wherein the serpent lay was to be passed, and after some slight contention between hunger and horror, off he went and hid himself. I then covered up the snake, and after luring him out with the apple, placed it on the blanket—No. I then shut down the lid—still the same desire and the same aversion. I then had the hamper, with the lid down, removed from the chair on which it had been placed to another part of the room. The apple was again shown to Tommy and placed on the lid. He advanced cautiously, looking back at the empty chair and then at the hamper: he advanced further with evident reluctance, but when he approached near he peered forward toward the basket, and, as if overcome by fright, again ran back and hid himself under his cage.

“I now caused the hamper with the serpent to be taken out of the room. Our friend soon came forward. I showed him the apple and placed it on the chair. He advanced a little, and I patted his head and encouraged him. He then came forth and went about the room, looking carefully as if to satisfy himself that the snake was gone—advanced to the chair more boldly,—looked under it—and then took the apple and ate it with great appetite, dancing about and resuming all his former gaiety.

“We know that there are large constricting serpents in Africa; and as the animal must have been very young when separated from its parent, I made this experiment in particular to try his instinct: it succeeded to the entire satisfaction of the witnesses who were present.

“He manifested aversion to a small living tortoise, but nothing like the horror which he betrayed at sight of the snake. I was induced to show him the former by the account of the effect produced by *Testudinata* on the Asiatic *Orang*, whose habits are so admirably described by Dr. Abel and Captain Methuen, who brought the animal to England.

“Tommy, among other exercises, is very fond of swinging. He places himself on the swing, generally in a sitting posture, holding on each side with his hands. He not unfrequently puts up his feet and grasps the cord on either side with them too, appearing more at home on his slack rope than Il Diavolo Antonio himself.

“James Hunt, one of the keepers, has observed him frequently

sitting and leaning his head on his hand, attentively looking at the keepers when at their supper, and watching, to use Hunt's expression, "every bit they put into their mouths." Fuller, the head keeper, informs me that our *Chimpanzee* generally takes his rest in a sitting posture, leaning rather forward with folded arms and sometimes with his face in his hands. Sometimes he sleeps prone, with his legs rather drawn up, and his head resting on his arms.

"Of the *black Orangs* which I have seen, Tommy is by far the most lively. He is in the best health and spirits, and is a very different animal from the drooping, sickly *Chimpanzees* that I have hitherto seen. A good deal of observation made on the Asiatic *Orangs* which have been exhibited in this country, satisfies me that the intelligence of the African *Orang* is superior to that of the Asiatic. This intelligence is entirely different from that of a well-educated dog or a mere mimic, and gives me the idea of an intellect more resembling that of a human being than of any other animal, though still infinitely below it.

"The *Pygmy* of Tyson and the *black Orang* dissected by Dr. Traill, and so well described by him in the 'Wernerian Transactions,' are both stated to have progressed generally by placing their bent fists on the ground and so advancing: indeed Dr. Traill says that the individual which he saw never placed the palms of the hands on the ground. The progression of Dr. Abel's *red* or *Asiatic Orang* is described to have been after the same fashion. Whether it is that our *Chimpanzee* is in better health and more lively, I know not, but he certainly passes a great deal of his time in a position nearly approaching to erect, nor does he, generally, place the bent knuckles to the ground. He will often stand on the top of his cage and apply the palms of his hands to the smooth surface of the wall against which it stands. It is said that a spectator who saw him thus employed, with his back to the company, dressed in his little banyan jacket and woollen cap, was told by a companion to look at the monkey, as he profanely called him. "Where is he?" was the reply. "Why there on the top of the cage," was the answer. "What!" said the first, "that little man who is plastering the wall?"

"Tommy does not like confinement, and when he is shut into his cage, the violence with which he pulls at and shakes the door is very great, and shows considerable strength; but I have never seen him use this exertion against any other part of the cage, though his keeper has endeavoured to induce him to do so in order to see whether he would make the distinction. When at liberty he is extremely playful, and, in his high jinks, I saw him toddle into a corner where an unlucky bitch was lying with a litter of very young pups, and lay hold of one of them, till the snarling of the mother and the voice of his keeper, to which he pays instant respect,

made him put the pup down. He then climbed up to the top of the cage where the *Marmozets* were, and jumped furiously upon it, evidently to astonish the inmates, who were astonished accordingly, and huddled together, looking up in consternation at this dreadful pother o'er their heads. Then he went to the window, opened it and looked out. I was afraid that he might make his escape: but the words "Tommy, no!" pronounced by his keeper in a mild but firm tone, caused him to shut the window and come away. He is in truth a most docile and affectionate animal, and it is impossible not to be taken by the expressive gestures and looks with which he courts your good opinion, and throws himself upon you for protection against annoyance.

"It must be remembered that though I have not observed our *Chimpanzee* to progress with his bent knuckles touching the ground, as I have seen the *Asiatic Orangs* move, there is no reason for doubting the accurate descriptions of Tyson and Dr. Traill. I consider it as my province to relate faithfully what I saw, and I have only seen our *Chimpanzee*, as yet, in a small room, where a very few paces will bring him to a chair, a leg of a dresser, or some other piece of furniture which enables him to call into action his prehensile hands and feet, so admirably adapted to his arboreal habits. The narrowness of the *pelvis*, the comparatively inferior development of the *glutæi** and *gastrocnemii* muscles, and other peculiarities of conformation so ably pointed out by Tyson, Dr. Traill, and others, but more particularly by Mr. Owen, show that the erect, or, more properly speaking, the semi-erect position, is not the natural one; though my observations upon living *Asiatic Orangs* and *Chimpanzees* accord with the inference drawn by Mr. Owen from the comparative organization of the latter, viz. that the semi-erect position is more easily maintained by the *Chimpanzee* than by any of the other known *Simiæ*.

"The great intelligence and strength of the individual now in the menagerie of the Society, added to the state of its dentition, raised a doubt in my mind as to the accuracy of the report of its age; and I wrote to my friend Mr. Owen my suspicion that he might be older than he was said to be. I received the following reply, in which so much valuable information is concentrated that I feel it to be due to those who may think this memoir worthy of attention to give it as I received it.

'21st October, 1835.

"My dear Broderip,—I feel that we have no data towards deter-

* This must be understood as limited to a comparison with the same muscles in man; for there is in the *Chimpanzee* as Mr. Owen observes, "a provision for a more extended attachment for the *glutæi* muscles, in a greater breadth of the *ilia* between the superior spinous processes, than is observed in the inferior *Simiæ*."

mining with certainty the exact age of the young *Chimpanzee* at the Gardens: its present state of dentition corresponds to that which our own species presents during the period of from 2 to 7 years, viz. incisors $\frac{4}{4}$, canines $\frac{2}{2}$, molars $\frac{4}{4}$, all of which belong to the deciduous series. The deciduous canines appear in the human jaws before the completion of the second year; and those of the *Chimpanzee* are certainly the temporary ones, but are protruded by the enlarged germs of the permanent teeth behind them, so as to appear larger than natural. From this circumstance and from the space already existing beyond the deciduous molars, I infer that the appearance of some of the permanent teeth is near at hand; and we may still see an additional molar protruding in each jaw before the winter is over, if the poor animal should survive that period.

“ ‘The human child acquires the corresponding permanent molars at the seventh year; and from the appearances on the jaws of our *Chimpanzee* I conclude that its age tallies with that of 5 or 6 years in us. But analogy will be dangerous ground for an inference as to precise age, since it is by no means improbable that, where the brain is so much less developed, the full use of it may be much earlier acquired, such as it is; and that the shedding of the teeth may take place at a proportionally early period.

‘ Believe me, &c. ‘ RICHARD OWEN.’

“ I now proceed to the measurements of our male specimen, premising that the operation was a work of no small difficulty in consequence of the restlessness of the animal. Indeed I am not sure now about the height, though I am confirmed in the measurements by Mr. Miller and Fuller. The *Chimpanzee* would keep drawing up his legs and putting the *musculus scansorius* detected by Dr. Traill into action; and it was not practicable to make him stand or lie quite straight with his legs entirely extended.

	Ft.	In.
Height from the heel to the top of the head	2	0
Circumference of the bottom of the breast	1	5
———— round the hips	1	3 $\frac{1}{4}$
———— of the head round the eyes and ears	1	3
Opening of the mouth	0	3 $\frac{1}{4}$
Height from the middle of the upper lip to the eyebrows	0	3 $\frac{1}{2}$
Length from the eyebrows to the <i>occiput</i>	0	7 $\frac{1}{2}$
Diameter of the ear upwards	0	2 $\frac{3}{4}$
Transverse diameter of the same	0	1 $\frac{3}{4}$
Circumference of the external edge of the same	0	6 $\frac{1}{2}$
———— of that part which adheres to the head	0	4 $\frac{1}{2}$
Height from the upper point of the <i>pubis</i> to the clavicle	0	10 $\frac{1}{2}$
Distance between the navel and <i>sternum</i>	0	4 $\frac{1}{4}$

Distance between the navel and <i>pubis</i>	0	3½
————— nipples	0	4
Length of the arm from the shoulder to the end of } the fingers	1	4½
Circumference of the arm.....	0	6
————— of the forearm four inches above the wrist	0	6½
Length of the hand from the wrist to the end of the } middle finger	0	5½
Circumference of the hand	0	4½
Length of the thumb.....	0	1½
————— second finger	0	2½
————— middle finger	0	3½
————— fourth finger.....	0	3
————— fifth finger.....	0	2½
Circumference of the thumb and little finger	0	1½
————— other fingers	0	1½
Length of the palm	0	2½
Breadth of ditto	0	2
Height from the heel to the extremity of the thigh-bone	0	11½
Length from the heel to the extremity of the middle } (longest) toe.....	0	5½
Circumference of the thigh.....	0	8½
————— leg, at its thickest part.....	0	6
————— foot, taken from the origin of } the thumb.....	0	5½
Length of the thumb or great toe.....	0	1½
————— second toe	0	2
————— third toe	0	2½
————— fourth toe	0	2½
————— fifth toe	0	1½
Greatest breadth of the sole at the origin of the thumb } or great toe	0	2½
————— near the heel	0	1½
Circumference of the great toe at the largest point....	0	1½
————— other toes	0	1½

“ On referring to the dimensions given by Daubenton we shall be struck with the stoutness of our specimen as compared with that of the individual which was the subject of his observations.

“ It was my intention to have added a particular description of the individual which has been the subject of this memoir; but on carefully inspecting the animal I find Dr. Traill’s elaborate description so accurate—(there really is no difference but sex at present)—that I should be needlessly occupying space if I inserted my own; and I beg, therefore, to refer the reader to that gentleman’s highly valuable papers in the ‘Wernerian Transactions’.

“ Since writing the above the cage in which our animal was confined has been enlarged and several barked branches have been nailed to a stem so as to form an artificial tree. These branches he ascends with great activity, and frequently swings with his head downwards, holding on by his lower extremities, and recovering himself with greater agility than any rope-dancer.”—W. J. B.

November 10, 1835.

Thomas Bell, Esq., in the Chair.

At the request of the Chairman, Mr. Gould exhibited a specimen of the true *Lanner Hawk*, *Falco Lanarius*, Linn., and entered into some details with respect to its distinguishing peculiarities. Its real characters, he stated, have hitherto been so imperfectly understood as to have led to very general doubts as to its existence as a distinct species.

Mr. Gould also exhibited specimens of two species of *Pheasant*, both of very great rarity, which had recently come into his possession: they were the *Phasianus Sæmmeringii*, Temm., and the *Phas. versicolor*, Ej. He accompanied the exhibition by some remarks on the subdivisions which appear to him to be required among the *Phasianidæ* generally; and more especially on the position, among that extensive group, of the species exhibited.

Mr. Bell read "Some Account of the *Crustacea* of the Coasts of South America, with Descriptions of New Genera and Species; founded principally on the Collections obtained by Mr. Cuming and Mr. Miller. (Tribus 1, *Oxyrhynchi*.)" The paper contains characters and descriptions of the following genera and species of *Crustacea*; and was accompanied by the exhibition of the specimens described in it, and of drawings in illustration of it.

Fam. LEPTOPODIIDÆ.

Genus LEPTOPODIA, *Leach*.

LEPTOPODIA SAGITTARIA, *Leach*.

Hab. apud Valparaiso.

Genus EURYPODIUS, *Guèr*.

EURYPODIUS LATREILLII, *Guèr*.

Hab. apud Valparaiso, *D. Cuming*; ad Rio Janeiro, *D. Miller*.

Fam. MAIIDÆ.

Genus LIBINIA, *Leach*.

LIBINIA ROSTRATA. *Lib. rostro producto, valido, bidentato; dentibus compressis, acutis, divergentibus.*

Long. tot. 2 poll. 8 lin., lat. 2 poll. 3 lin.

Hab. ad oras Peruvix.

Genus RHODIA.

Testa pyriformis, in rostrum parvum bidentatum anticè producta.
No. XXXV.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

Oculi retractiles, globosi, pedunculo crassiores.

Orbita fissurâ magnâ supernè apertâ.

Antennæ interiores in foveolis profundis, lunatis, anticè separatis receptæ.

Antennæ exteriores rostro duplo longiores; articulo basilari bidentato, reliquis cylindricis, ad rostri latera insertæ.

Pedum par anticum (♂ immaturi) reliquis brevius; digitis minutissimè serratis; *paria quatuor posteriora* testâ longiora, a secundo ad quintum sensim paullò breviora.

Abdomen MARIS 7-articulatum; FÆMINÆ — ?

OBS. Genus *Herbstiæ* affine; differt præcipuè pedibus anticis tenuioribus abbreviatis, digitisque minutissimè tantum serratis.

RHODIA PYRIFORMIS.

Long. testæ 8 lin., lat. 6.

Hab. ad Insulas Gallapagos dictas.

Genus PELIA.

Testa pyriformis, rotundata, anticè rostro elongato apice bifido terminata.

Orbita suprâ fornicata, externè unifissa, infrâ emarginata.

Oculi retractiles, globosi, pedunculo crassiores.

Antennæ interiores in basin rostri insertæ.

Antennæ exteriores rostro haud multo longiores, articulo basilari longissimo ad medium rostri attinente, extûs uni-denticulato; articulis reliquis cylindricis, gracilibus.

Pedipalpi externi caule externo semifusiformi; caulis interni articulo primo elongato-rhomboideo, secundo trapezoideo, margine integro.

Pedum par anticum aliis paullò crassius, secundo brevius; digitis apicem versus serrulatis, digito immobili ad medium excavato, tuberculum unicum digiti mobilis recipiente: *paria quatuor posteriora* gracilia; compressa, pilosa.

Abdomen MARIS 7-articulatum.

OBS. Genus *Herbstiæ* et *Pisæ* affine.

PELIA PULCHELLA.

Long. testæ 4 lin., lat. 2½.

Hab. ad Insulas Gallapagos dictas.

Genus HERBSTIA, *Edw.*

HERBSTIA EDWARDSII. *Herbst. pedum pare antico inermi.*

Long. testæ 7 lin., lat. 6.

Hab. ad Insulas Gallapagos dictas.

Genus THOË.

Testa subtriangularis, depressa, horizontalis, rostro minimo apice leviter fisso terminata.

Orbita edentata, fissuris tribus inconspicuis.

Oculi retractiles, globosi, pedunculo brevi.

Antennæ interiores in fossulâ anticè tantum divisâ insertæ.

Antennæ exteriores ad latera rostri insertæ, rostro triplo longiores, pilosæ, articulo basilari lato, anticè et posticè producto.

Pedipalpi externi introrsum ciliati, caulis interni articulo primo sub-rhomboideo, secundo margine integro.

Pedes antici MARIS reliquis longiores, brachiis suprâ et externè serie cellularum erosis; manibus lævibus, digitis ad apicem tantum contingentibus: *posteriores* depressi, lateribus pilosis.

Abdomen in utroque sexu 7-articulatum.

Obs. Genus *Herbstia* affine: differt corpore depresso, rostrique formâ. Peculiares admodum cellulæ brachiorum.

THOË EROSA.

Long. testæ 5 lin., lat. 4.

Hab. ad Insulas Gallapagos dictas.

Genus HYAS, Leach.

HYAS EDWARDSII. *Hy. testâ anticè angustatâ, post orbitas haud coarctatâ, pilosâ; orbitalium dente interno mediocri.*

Long. testæ 9 lin., lat. 7.

Hab. apud Valparaiso et ad Insulas Gallapagos dictas.

Genus PISA, Leach.

PISA SPINIPES. *Pisa testâ ovatâ; dente articuli basilaris antennæ exterioris dente superorbitali longiore; margine antico-laterali et pedibus omnibus spinosis.*

Long. testæ 8 lin., lat. 4.

Hab. ad Insulas Gallapagos dictas, et apud Sanctam Elenam.

PISA ACULEATA. *Pisa testâ triangulari; dente articuli basilaris antennæ exterioris dente superorbitali brevioris; margine antico-laterali inermi, regione branchiali spinis quatuor armatâ, pedibus suprâ spinosis.*

Long. testæ 8 lin., lat. 7.

Hab. ad Insulas Gallapagos dictas.

Genus MITHRAX, Leach.

MITHRAX ROSTRATUS. *Mithr. testâ spinosâ, rostro elongato bidentato, dentibus divaricatis, terminatâ; pedibus spinosis, manibus lævibus.*

Long. testæ 2 poll. 2 lin., lat. 2 poll.

Hab.

MITHRAX URSUS (Jun. *Cancer Ursus*, Herbst). *Mithr. testâ granulatâ, verrucoso-tuberculatâ; rostri dentibus obtusis tuberculo granuloso terminatis; tuberculis octo pone rostrum, et sex circum orbitam; manibus lævibus.*

Long. testæ 2 poll., lat. eadem.

Hab. ad Insulas Gallapagos dictas.

MITHRAX NODOSUS. *Mithr. testâ trigono-ovatâ, margine tuberculis tribus fortibus, rotundatis, et dente unico; rostro brevi trifido; pedipalpis articulo secundo caulis externi lunulato; manibus lævibus,*

suprà cristatis, carpis tuberculatis; pedibus posterioribus suprà spinosissimis et pilosis.

Long. testæ 1 poll., lat. 1 poll., 3 lin.

Hab. ad Insulas Gallapagos dictas.

MITHRAX DENTICULATUS. *Mithr. testâ profundè sculptâ, margine laterali dentibus quatuor obtusiusculis; pedipalpis articulo secundo caulis interni cordato; manibus lævibus; pedibus posterioribus pilosis, spinosissimis.*

Long. testæ 5 lin., lat. 6.

Hab. ad Insulas Gallapagos dictas, sub lapidibus.

MITHRAX PYGMÆUS. *Mithr. testâ depressâ, subpentagonâ, fronte obtusissimo, lato, obsolete bilobo.*

Long. testæ 3 lin., lat. eadem.

Hab. apud Panama.

Genus PITHO.

Testa latè ovata, rostro parvo, brevi, bifido, haud deflexo, terminatâ.

Oculi pedunculo elongato, cylindrico, subcurvo, haud crassiores.

Antennæ interiores minutissimæ.

Antennæ exteriores breviusculæ, articulo basilari lamelloso, extùs dente triangulari armato; secundo compresso, cordato, anticè emarginato, et tertio multò majore; reliquis parvis cylindricis.

Pedipalpi externi caulis interni articulo secundo triangulari, extorsùm producto.

Pedes mediocres. *Par anticum* MARIS — — ? FÆMINÆ reliquis minus, digitis minutè serrulatis, digito mobili longiore; *paria quatuor posteriora* ordine 2, 3, 4, 5 gradatim breviora; digitis subtùs minutissimè denticulatis.

Abdomen MARIS — — ? FÆMINÆ 7-articulatum.

Obs. *Micippæ* et *Paramicippæ* affine: differt præcipuè rostro minuto haud deflexo.

PITHO SEXDENTATA. *Pitho testæ margine laterali dentibus sex triangularibus acutis.*

Long. testæ 9 lin., lat. 8.

Hab. ad Insulas Gallapagos dictas.

PITHO QUINQUEDENTATA. *Pitho testæ margine laterali dentibus quinque triangularibus acutis armato.*

Long. testæ 6 lin., lat. 5.

Hab. cum præcedente.

Genus TYCHE.

Testa oblonga, depressa, angulata, anticè declivis, fronte lato, rostro bidentato piloso terminata; rostri dentes compressi, obtusi, apicem versus internè emarginati.

Orbita suprà latissima, in dente prominente complanato anticè producta, infrà carens.

Oculi pedunculo elongato graciliores.

Antennæ interiores in fossulâ ad basin rostri insertæ.

Antennæ exteriores rostro paulò longiores, articulo basilari latiusculo, anticè angustiore; articulo tertio secundo abruptè minore; omnibus externè pilosis.

Pedipalpi externi rugosi, caule exteriori subulato, caulis interioris articulo primo canaliculato, extùs profundè emarginato, secundo securiformi, tridentato.

Pedes antici graciles, simplices, pari secundo breviores, digitis inermibus: *posteriores* cylindrici, unguibus acutis, curvis, complanatis terminati.

Abdomen MARIS 7-articulatum; FEMINÆ — — ?

OBS. Genus *Creocarcino* affine.

TYCHE LAMELLIFRONS.

Long. testæ 7 lin., lat. 4.

Hab. apud Panama.

Genus PERICERA, *Latr.*

PERICERA VILLOSA. *Per. testá depressá, villosá, regionibus elevatis, sulcis separatis, spiná obtusá laterali utrinque; rostri cornibus validis, sublamelliformibus, divergentibus; dente articuli basilaris antennæ externæ dente superorbitali multò longiore; antennis exterioribus sub rostro insertis.*

Long. testæ 1 poll. 7 lin., lat. eadem (spinis lateralibus inclusis).

Hab. in Sinu Guayaquil.

PERICERA OVATA. *Per. testá elongato-ovatá, spinis viginti ad viginti quatuor armatá; dente superorbitali dente articuli basilaris antennæ externæ longiore.*

Long. testæ 1 poll., lat. 6 lin.

Hab. ad Insulas Gallapagos dictas.

PERICERA HEPTACANTHA. *Per. testá pyriformi, dorso quinque-spinoso, ordine 1, 3, 1, lateribus utrinque 1-spinosis; rostri cornibus parvis, acutis.*

Long. testæ 1 poll. 5 lin., lat. (spinis lateralibus inclusis) 1 poll. 7 lin.

Hab. apud Puerto Portrero.

Genus ACANTHONYX, *Latr.*

ACANTHONYX PETIVERII, *Edw.*

Hab. ad Insulas Gallapagos dictas, *D. Cuming*; ad oras Brasiliæ, *D. Miller.*

Genus EPIALTUS, *Edw.*

EPIALTUS DENTATUS, *Edw.*

Hab. apud Valparaiso.

EPIALTUS MARGINATUS. *Ep. testá depressá, lateribus marginatis; fronte latá, antennas exteriores omnino tegente.*

Long. testæ 2 poll. 3 lin., lat. 1 poll. 8 lin.

Hab. ad oras Brasiliæ.

The skeleton was exhibited of a *Coypus*, *Myopotamus Coypus*, *Comm.*, together with preparations of some of the *viscera* obtained from the

same individual, which recently died at the Society's Gardens. With reference to them the following notes by Mr. Martin were read.

"Though the *Coypus* is now well known to naturalists, I am not aware that much attention has been paid to its anatomy:—it is not often, indeed, that the living animal is brought to Europe, extensive as the importation of its skins appears to be. I am therefore not without a hope that the following notes of the examination of an individual which died in August, 1835, at the Gardens of the Society, will be found not altogether destitute of interest, imperfect as they are from circumstances over which I had no controul.

"The animal was an adult male, measuring from nose to *anus* 1 foot 11 inches; the length of the tail being 1 foot 5 inches. The body was very fat; and the subcutaneous muscle or *panniculus carnosus* was strong and extensive, as it is in aquatic *Rodents* in general. Of the external organs of generation the *penis* alone was apparent, for the *testes* are not contained in a *scrotum* but situated in the groin just without the abdominal ring; the length of the *penis* from the *pubes* was 5 inches; the *glans* was acuminate and contained an osseous stylet.

"On looking into the *abdomen*, I found that the *viscera* had previously been disarranged, in the examination which the animal had undergone with the view of ascertaining the cause of its death; their natural situation consequently could not be determined. The *liver* consisted of one left, one middle, and two right lobes, one of which was small and seated dorsad. The middle lobe was deeply cleft; and in the channel continued from the fissure on the under surface of this lobe was seated the gall-bladder, which, having been cut, was destitute of its fluid. On distending this *viscus*, however, through the *ductus choledochus*, which was as large as a crow-quill, I found its shape to be a long oval, measuring in length 2 inches, its duct being joined by a large hepatic duct, $\frac{1}{2}$ an inch below its commencement; the total length of the *ductus choledochus communis* was 2 inches, and its entrance into the *duodenum* was just below the sacculated origin of that portion of the intestine, or $2\frac{1}{2}$ inches from the *pylorus*.

"The *pancreas* consisted of an irregular mass or body concealed by the stomach, whence it spread itself, in thin irregular layers of an elegant arborescent arrangement, through the duodenal mesentery, between the two membranes. Its duct, owing to the previous disarrangement of the *viscera*, I could not discover; it did not appear to enter with the biliary.

"The spleen resembled a prism in its figure, and was 3 inches in length; it adhered to the cardiac portion of the stomach by a ribband of *peritoneum* 1 inch in breadth. In the *Ondatra*, the *Capromys*, and some other *Rodentia*, the spleen presents the same figure.

"The stomach closely resembled that of the *Capromys*, being of an oblong figure, both extremities having pretty nearly the same volume; the cardiac extremity projecting 3 inches beyond the entrance of the narrow *oesophagus*, and the pyloric *sacculus* a little more than 2 beyond the *pyloric orifice*. The stomach, measured in a straight line from end to end, was $7\frac{1}{4}$ inches; its greatest depth being $4\frac{1}{2}$.

“The *duodenum* was found to commence with a large dilatation or *sacculus*, projecting towards the *oesophagus* like a *cæcum*; in which respect it resembles *Calogenus* as described by Sir E. Home. In *Capromys*, *Anama*, and *Dasyprocta* a similar dilatation, though not so considerable, has also been noticed. In circumference at this part the *duodenum* measured $4\frac{1}{2}$ inches; the decrease is gradual, and where the biliary duct enters the circumference is 3 inches; a little distance below this it is $2\frac{1}{2}$. To follow the natural course of this intestine was out of my power; it has a mesentery, however, through its whole extent.

“The total length of the small intestines was 16 feet 4 inches, and their mean circumference $1\frac{3}{4}$.

“The *cæcum* was of large size, making a circular turn at its base and gradually diminishing in volume as it proceeded. It was puckered into *sacculi* by two muscular bands, one on each side; which were not however traceable quite to its extremity, but were tolerably strong in its wide basal part. In its general figure the *cæcum* had no unapt resemblance to a ram's horn. In length it measured about 1 foot 10 inches, its greatest circumference 8 inches.

“The *ileum* terminated in a sort of *sacculus* at the base of the *colon*, beyond which projected the round head of the *cæcum*: the valve indicating the separation of the *cæcum* from the *colon* is very apparent in the dried preparation.

“The *colon* began large, but gradually became narrow; on leaving the *cæcum* it was slightly sacculated for a short distance, but this appearance was speedily lost: its mean circumference was $2\frac{3}{4}$ inches. The commencement of the *colon* was not only somewhat larger than the succeeding portion, but made an abrupt turn from the *cæcum*, and after a course of 1 foot 5 inches suddenly folded upon itself, the reflected length running down for the distance of 11 inches, when it turned suddenly back again, but did not adhere so closely to the previous fold, as that did to the first length; it then became very small, and soon dipped down to constitute the *rectum*. The whole of this long loose fold reminded me of the *duodenum* of *Birds*. A similar structure is recorded by Mr. Owen in his notes on the dissection of *Capromys Fournierii*, as existing in that animal. It was near the end of the first loose fold, as also in *Capromys*, that the *faeces* began to assume a solid form in separate oval masses. The total length of the large intestines was 4 feet 4 inches.

“The kidneys were of an oval form, and very soft in their structure; their surface, the tunic being removed, presented a granular appearance. The two portions were very distinct. The *pelvis* was small; the *papilla* single. The right kidney was somewhat higher than the left. The length of each was 2 inches, the breadth $1\frac{1}{2}$. The suprarenal glands were long and rounded, of a greyish yellow externally; but their internal structure was like soft liver: each had a small cavity within. Their length was 1 inch. Their situation was mesial of the upper extremity of each kidney.

“The lungs were of small volume, and consisted of three lobes of nearly equal size, and one very small lobe on the right; and of three lobes on the left side.

“ In shape the heart was very elegant ; it was compressed, and both ventricles described the half of a circle, and ended in a short sharp *apex*. The length and breadth of this organ were equal, the admeasurements being each $1\frac{3}{4}$ inch.

“ The disposition of the branches given off at the arch of the *aorta* was as follows. On the right side arose a common trunk, which divided into the right subclavian and the right carotid, but gave off lower down to the left the left carotid. The left subclavian arose from the *aorta* in a distinct branch.

“ In his account of the anatomy of *Capromys* Mr. Owen notices a peculiarity in the arrangement of some of the abdominal muscles : a decussation of the pillars of the *recti* muscles taking place at the *pubes*. In the *Coypus* an arrangement of a similar character was observed. It may be thus described. From the right *os pubis* and close to the *symphysis* arises a fleshy column, which crossing a column arising from the left side passes obliquely upwards, and becomes immediately united with another larger column arising more outwardly, and passing under the column of fibres from the left side, as the first does above it ; and thus is constituted the left *rectus* muscle. Between these two columns, as we have said, and from the left side of the *pubes*, runs up a decussating column, which blends with another passing beneath the larger column of the left *rectus*, both forming by their union the right *rectus abdominis*. The lower column of the external oblique, with which muscle the *rectus* is blended above (as in *Capromys*) so as to appear in reality but one, has its own insertion on its own side.

“ The *testes* were situated in the groin on each side of the *pubes*, enveloped in a strong cremaster of circular fibres given off from the external oblique and *transversalis* ; they were capable of being passed back through the abdominal ring, which is very large, the columns of the *rectus* forming its inner edge. As in many others of the *Rodent* order, large foliated fatty processes, adhering to the *testes*, were found hanging loose in the abdominal cavity ; their length was 5 inches, their breadth at the broadest part 2.

“ The bladder was of the usual oval form, and, as it lay undistended with fluid, measured 2 inches in length. The ureters entered laterally near its neck.

“ Beneath the ureters near their entrance the *vasa deferentia* crossed : the total length of these tubes was 5 inches ; at their origin on leaving the *epididymis* they were found to be slightly tortuous, but only for a short distance. The *epididymis* consisted of a congeries of convolutions, whence a tortuous elongated portion followed the convex surface of the *testis* for two thirds of its length, and then passed into the *vas deferens*, which was enveloped in a fatty process extending from the *testes*, and spreading over the base of the *vesiculae seminales* and the proximate portion of the ureters. The *vesiculae seminales* were long tortuous bodies with numerous small processes or *sacculi*, giving them a knotted appearance : at their *apex* they folded down upon themselves, and terminated in a point : when extended they measured about 4 inches.

“ The *urethra* at its commencement formed a sort of *cul de sac*,

as noticed by Mr. Owen in the *Capromys*; and a transverse ridge separated the entrance of the bladder from the orifices of the *vasa deferentia* and *vesiculæ seminales*. Below this ridge was a small conical body, at the *apex* of which opened the *vasa deferentia*, and on the sides the *vesiculæ seminales*. The latter, when opened, were found filled with a white hard curdy matter having some resemblance to the roe of fishes. This substance filled a great portion of the *urethra* also.

“The prostate gland appeared like accessory *vesiculæ*, and was closely united to the base of those bodies: it was divided into two large lobes, each of which was found to be composed of a number of blind tubes or elongated cells, united into a mass by cellular membrane. They were easily unravelled into a tuft of long fringes, each tube being $\frac{3}{4}$ of an inch in length. These tubes all concentrated in a small spot, where they opened by a few minute orifices into the *urethra* at the base of the little conical elevation before alluded to.

“The distance from the prostate to the base of the bulb of the *urethra* was $1\frac{3}{4}$ inch.

“The membranous part of the *urethra* was closely embraced by a layer of muscular fibres: the *acceleratores urinæ* investing the bulb were large and strong: the *erectores* were fleshy; they embraced the *crura penis*. On each side of the bulb, external to the *accelerator urinæ*, lay a gland as large as a filbert, whence proceeded a tube of the diameter of a crow-quill, which passing beneath the *accelerator* entered the bulb of the *urethra* above its centre. The length of this duct was 1 inch. These glands are, I suppose, to be considered as the *glandulæ ante-prostatæ*, or Cowper’s glands.

“At the extremity of the *rectum* on its abdominal aspect was situated a large glandular sac of the size of a walnut filled with inodorous creamy matter; its excretory orifice was just within the anal opening. This sac was invested with a tunic of muscular fibres continued from the *sphincter* and *levator ani*.

“The *tongue* was acuminate and 3 inches in length, its surface covered with small retroverted shining velvety *papillæ*; two large distinct *papillæ* of an oval form appearing at the base. The free part of the tongue, that is from the *frænum* to the *apex*, was $\frac{3}{4}$ of an inch. The basal portion of the *dorsum* was elevated, but not so abruptly as in some *Rodents*; the disc, however, was sufficiently marked.

“The *fauces* were found to form a funnel-shaped cavity with neither tonsils nor palate arches; but the soft palate was continuous to the posterior aperture, which barely admitted the entrance of a common quill. The *posterior nares* were continued like a funnel beyond this posterior orifice of the *fauces*, and received into their aperture the *glottis*, *epiglottis*, and arytenoid cartilages, so that the margin of the orifice of the *fauces* lay in contact with the *dorsum* of the tongue anterior to the *epiglottis*, which rose behind it, and which it was evident could not be brought at all under the soft palate; hence respiration and every vocal intonation must proceed through the nostrils.

“The *epiglottis* was broad basally, but not elevated; it assumed

a rounded figure, and when pressed down did not completely cover the *rima* of the *glottis* until the *larynx* was depressed towards its base.

“A distinct fold or duplicature surrounded the opening of the *nares* into the *œsophagus*; which tube was small, and had its lining membrane corrugated into longitudinal folds.

“The sublingual glands were large.

“The *trachea* was about 3 inches in length to its bifurcation, and $\frac{1}{2}$ an inch in diameter; the *bronchi* were about 1 inch long before entering the lungs.

“To the above sketch of the visceral anatomy of the *Coypus*, I have to subjoin a few observations on some portions of its skeleton.

“Of the skulls of such *Rodentia* as I have been enabled to compare with that of the present animal, although it agrees in many points with that of *Capromys*, the one which approximates the nearest to it is that of the *Capybara*. The main outline and contour of both are very similar; they both agree in the flatness of their upper surface, in the elongation of their form, in the magnitude of the suborbital *foramen*, and in the development of the processes of the occipital bone continued from its transverse crest. When, however, we descend to details, numerous and striking points of difference are immediately observable. In the *Capybara*, for instance, the margin of the orbit is circular or nearly so, and the zygomatic arch, broad and strong, has its lower edge brought down considerably below the level of the *molars*: whereas in the *Coypus* the margin of the orbit approaches to a square, and the zygomatic arch is narrow and scarcely depends to a level with the crown of the *molars*, though it advances much further than either in the *Beaver* or *Water Rat*; in which animals the orbits, of an oval shape, have a less lateral and more vertical aspect. In the *Coypus* the temporal *fossæ* are deeper than in the *Capybara* or the *Beaver*, and the external auditory *foramen* runs obliquely forwards and downwards, while in the *Capybara* it runs obliquely downwards and inwards, and in the *Beaver* downwards and backwards. The frontal bone is divided by a permanent longitudinal suture, as it is also in *Capromys*; whereas in the *Capybara*, the *Water Rat*, and the *Beaver* no trace, at least in adults, of such a separation is visible. The *Beaver* when semiadult exhibits, however, a slight appearance of it.

“The general admeasurements of the skull of the *Coypus* before me are as follows:

	In.	Lin.
From the end of the nasal bones to the occipital ridge. .	4	6
From the lower edge of one <i>zygoma</i> to the opposite ..	2	9
Breadth of the frontal bones between the orbits	1	3
From the outer edge of the last molar tooth to the edge of the <i>zygoma</i>	0	5
From the base of the incisors to the base of the first molar	1	3
From the crown of the first molar to the top of the skull where the nasal and frontal bones unite in a straight line	1	9

Length of the row of the <i>molars</i> on each side	1	1
Breadth of the lower jaw from the outer edge of one <i>ramus</i> at its broadest part to the opposite.	3	3
From the middle of the condyle of the lower jaw to the base of the incisors	3	1

“Placing the skull before us, and surveying its upper aspect, we observe that the nasal bones are narrow and elongated, being broadest at their nasal extremity and narrowest at their frontal, as in *Capromys* and the *Water Rat*, but not in so great a degree. In the *Capybara* the contrary obtains: in the *Beaver* the nasal bones are broadest in the middle. Their length in the *Coypus* is $1\frac{3}{4}$ inch, their united breadth at the frontal union 5 lines.

“By the side of the nasal bones runs up the ascending *ramus* of the intermaxillary bone, which at its union to the frontal expands considerably, and terminates on an exact level with the nasal. In the *Capybara* the *ramus* is very narrow, and does not ascend quite so high as the nasal: in two skulls of the *Beaver* now before me, I find it ascend 1 line-higher than the nasal in the one, and 2 lines lower than the nasal in the other. In *Capromys* it ascends somewhat higher.

“The frontal bones, having a longitudinal suture between them, form an oblong square, occupying a considerable space, their length being 1 inch 5 lines, and their united breadth 1 inch 3 lines. They form above the orbits a bold but level ridge: in the *Capybara* this ridge is arched, rounding the orbit above; in the *Beaver* the ridge is but little prominent; and in the *Water Rat* there is none. It may be added that in the *Beaver* the frontal bone (for here we may speak of it as single) approaches a triangle in its outline, the anterior portion of the parietal bone on each side advancing upon it.

“In the *Coypus* the parietal bones are small, and are depressed on each side posteriorly to form a deep temporal *fossa*, bounded by a ridge (the index of the origin of the temporal muscle), which ridge, with the coronal suture for a base line, forms a triangle ending in a slight short sagittal crest. The parietal bones are nearly consolidated together, and doubtless become ultimately completely so; it is only for a short space from the coronal suture that in the present skull any trace of a sagittal suture is visible. In the *Capybara* the union is complete; but in the *Beaver* the sagittal suture continues unobliterated, and the parietal bones moreover are separated posteriorly by a large interparietal or *os triquetrum*. In the *Water Rat* there is an oblong post-parietal bone.

“The occipital bone is narrower than in the *Beaver*, and more nearly resembles that of the *Capybara*; it rises, however, immediately behind the lambdoid suture into a high strong transverse crest, which sweeps down on each side, and is continued in two strong processes, the outer and shorter of which passes just behind the auditory *foramen*, while the interior process has its base between the former and the condyle, abuts upon the posterior part of the tympanic *bullæ*, and passing obliquely outwards and downwards ends in a broad lunar-shaped termination: its length is 1 inch 2 lines. The *foramen magnum* is nearly circular: in the *Beaver* it is compressed horizon-

tally: in the *Capybara* laterally. The cuneiform process is flat with a slight mesial spine: in the *Capybara* it is convex: in the *Beaver* hollowed out like a box. The condyles resemble those of the *Capybara*, but advance somewhat more forwards.

"The squamous portion of the temporal bone, which, as is usual in these animals, is separated by a permanent suture from the petrous, consists of a narrow strip, advancing from the base of the occipital ridge, and then spreading to form the posterior margin of the orbit; a bold process backing the posterior angle of the superciliary ridge. The zygomatic process of the temporal bone resembles that of the *Beaver* more nearly than that of the *Capybara* or of the *Capromys*, but turns up at its extremity in a more decided hook. The petrous portion is small, and, with the exception of the ridge round the auditory *foramen*, consists of little besides the tympanic *bullæ*, which in the *Beaver* is externally divided by a strong ridge.

"The malar bone is elongated and narrow, but, as in *Capromys* also, it does not advance forwards along the zygomatic process of the maxillary bone as in the *Beaver*, the suture being just behind the great sub-orbital *foramen*. In the *Capybara* the malar bone does not advance so far. The large *foramen* alluded to is formed by two branch-like processes of the maxillary bone, the upper one of which arises just below the union of this bone to the frontal, and, bending down, forms the anterior margin of the orbit; the other branch arises just over the root of the first molar tooth, and advancing outwards and backwards joins the other branch to form the boundary of the *foramen*, which is a triangular aperture leading at once to the orbit. In the *Beaver* the sub-orbital *foramen* is very small. In the *Water Rat* it is somewhat larger than in the *Beaver*. In *Capromys* it is as open as in the *Coypus*.

"The lachrymal bone, which in the *Capybara* spreads largely in a triangle without the orbit at the interior inferior angle, is in the *Coypus* very small and altogether within the orbit.

"On turning to the base of the skull we may observe that the internal pterygoid processes, (which in the *Capybara* are very small, but both in the *Beaver* and *Water Rat* largely developed, being in the former of a hook-like figure and touching with their *apex* the anterior point of the tympanic *bullæ*.) are here moderate and bent back, their points being on a level with the spheno-temporal fissure. The *glenoid cavity*, which the malar bone contributes to form, resembles that of the *Beaver*.

"The palate bones, which in the *Beaver* begin in a point opposite to the posterior edge of the first molar, here begin opposite the posterior edge of the third molar; but they advance further backwards so as to throw the pterygoid processes to a considerable distance from the last molar tooth: in which circumstances the *Coypus* differs both from the *Beaver* and the *Capybara*, and more nearly agrees with *Capromys*, where the palate bones commence opposite the middle of the second molar, but do not advance so far backwards.

"The lower jaw of the *Coypus* is very remarkable; it seems as if it had been horizontally compressed, so as to throw the broad part of each *ramus* outwardly into a semilunar shelf. The fact is that this part must be regarded not as the body but as a process of the

ramus which exists also, but in a more moderate degree, in *Capromys*; in the *Capybara* we see indications of a similar structure. An immense space is here afforded for the insertion of the temporal and masseter muscles: these muscles may be short, but their strength will be prodigious. In the *Beaver* the coronoid processes are long and rise above the condyles: in the *Capybara* they are short and on a level with the condyloid processes, which are themselves very contracted: in *Capromys* they are very small: but in the *Coypus* the coronoid processes are reduced to a mere rudiment, elevated by the side of the last molar tooth. On the contrary the posterior angle here stretches back in a flat narrow process continued from the lateral shelf, or, as we may term it, horizontal reflexion of the lower margin of the *ramus*.

“The dentition of the *Coypus* is figured by M. F. Cuvier in his work ‘*Sur les Dents des Mammifères*.’ It differs widely from that of *Hydromys*, with which the animal was associated generically by M. Geoffroy St. Hilaire. Cuvier observes, that the skull of the *Coypus* has a resemblance to that of *Hystrix dorsata*: I have not seen a skull of this animal and therefore cannot judge, but certainly the teeth as given by M. F. Cuvier and those of the *Coypus* materially differ. The molars in the *Coypus* are four on each side above and below. In the upper jaw they have an outward inclination; the last is the largest, and they decrease in size slightly but regularly from the last to the first: each is a copy of the other; and the ribbands of enamel are oblique. The molars of the lower jaw incline obliquely inwards, and decrease in size from the last to the anterior. The *incisores* are large and strong and of a deep orange yellow on their outer surface; the *alveoli* of those of the upper jaw pass through the intermaxillary into the true maxillary bones. In the lower jaw they extend beneath the whole row of the *molars*.

“Of the rest of the skeleton, the trunk, clavicles, *scapulae*, *humeri*, and femoral bones are all that I have been able to examine, the rest being contained within the mounted specimen.

“The *scapula* agrees closely with that of *Capromys*, but differs considerably in shape from that of the *Beaver*. Its anterior edge runs out into an angle, at a greater comparative distance from the spinous ridge than either in the *Beaver* or the *Porcupine*; and the same may be said of the posterior angle: so that the total breadth of this bone is comparatively greater than it is in those two animals. Its length from the glenoid cavity to the posterior angle is $2\frac{1}{4}$ inches. Its breadth from this angle to the opposite 2. The spinous ridge is thin and but little elevated; about the middle it is slightly dilated. Three quarters of an inch before it reaches the level of the glenoid cavity it ceases; the *acromion* process being here united to it by cartilage in the specimen belonging to the Society. I find, however, that this cartilaginous union at some period of the animal’s existence becomes ossified; for in a clavicle belonging to Mr. Blackett the *acromion* is completely ankylosed to the extremity of the spine. This process is at first slender, but it spreads at its termination into a broad triangular base, to the anterior *apex* of which is attached the clavicle. The length

of this process is 1 inch, and it advances $\frac{1}{2}$ an inch beyond the glenoid cavity.

“The clavicle is slender, 1 inch 5 lines long, with a slight sigmoid flexure.

“The *humerus* presents nothing very remarkable; its length is $1\frac{3}{4}$ inch.

“The *pelvis* is long and narrow; its breadth from point to point is $3\frac{1}{4}$ inches; its length, 5 inches; the depth of the *symphysis pubis*, $1\frac{1}{2}$ inch.

“The *femur* is thin and small, and has both a *trochanter major* and a *trochanter minor*.

“In the motions of the hinder limbs of the *Coypus* when alive I observed not only an awkwardness, but a want of firmness, which gave something of a crawling character to the progression of the animal on the floor. A recollection of this circumstance, which struck me when I first saw the animal, led me to open the capsule of the hip-joint with care: on doing this, I was surprised to see no *ligamentum teres*: on opening the other, still none appeared. I am convinced that I did not destroy or rupture the ligament, for no ruptured fibres were at all visible, and on opening the *acetabula* of other animals at the same time, the ligament was found strong and large; in this, however, nothing of the kind was visible. There is on the head of the *femur* a very slight depression, but it is covered, as the rest of the head, with smooth cartilage. I believe, therefore, that the *Coypus* may be added to the list of the few *Mammalia* in which this ligament is absent: but it would be desirable that another specimen should be examined before this peculiarity is insisted on as an ascertained fact.

“The ribs are short, thin and flexible, the longest measuring only 3 inches exclusive of the cartilage; the first two are very short, but strong. The chest of the *Coypus* is, in fact, of very small capacity. The number of the ribs is thirteen.

“The spinous process of the first dorsal *vertebra* is very short, like those of the cervical *vertebræ*; but that of the second rises abruptly to the length of 1 inch, which is at least a quarter higher than those of the succeeding *vertebræ*.

“The number of the *vertebræ* is as follows:—

Cervical	7
Dorsal	13
Lumbar	6
Sacral	4
Caudal	23

“I regret that I was unable to examine all the bones of the extremities, as Cuvier notices a peculiarity in those of the *carpus*,—in there being no separation between the *os magnum* and *trapezoides*.”

Mr. Christy subsequently exhibited several skins of the *Coypus*, for the purpose of directing the attention of the Meeting to the position of the *mammæ* in the female, which are situated extremely high up the sides.

November 24, 1835.

Richard Owen, Esq., in the Chair.

Mr. Yarrell exhibited a specimen of the *Syngnathus Acus*, Linn., with the view of again calling the attention of the Society to the fact that the males in this species of *Pipe-fish* are furnished with a pouch under the tail, in which they bear about with them the *ova* until the young have escaped from the capsule; and which probably serves also as a place of shelter to which the young can, for some time after their exclusion, retreat in case of danger. In this individual the opened *abdomen* exhibited the preparatory organs of the male; and the displayed subcaudal pouch showed many eggs contained in it, the young of which were fully developed and ready to escape from the capsules, while from others the young had actually escaped. As a guide to those observers who may be desirous of procuring specimens equally illustrative of the peculiarity of this fish, Mr. Yarrell mentioned that the individual exhibited was obtained on the 20th of July.

Mr. Yarrell read some "Notes on the Economy of an Insect destructive to Turnips"; which he prefaced by adverting to the importance to agriculture of an attentive collection of those entomological facts which relate to species injurious to the ordinary crops of the farmer. He then proceeded to remark that the turnip crop is in this country usually infested in every season by two species of *Haltica*; and that another destroyer has been, in the dry summer of this year, superadded to them, especially on the light and chalky soils. To the history of this latter pest, which has been known to occur in those seasons only in which there has been an almost total absence of rain, Mr. Yarrell's paper is directed. A good account of a similar visitation in 1782, as it was observed in Norfolk by Mr. William Marshall, was published in the 'Philosophical Transactions' for the following year.

Early in July last the "yellow fly" was seen upon the young turnips. It was remembered by some farmers that this was the fly which prevailed in the year 1818, and which was followed by the caterpillars known by the name of the blacks. The eggs being deposited by the perfect insect in the leaf of the plant, the black caterpillar or turnip-pest speedily makes its appearance, feeding on the soft portions of the leaves of the turnips and leaving the fibres untouched; and finally, casting its black skin and assuming one of a more slaty or grey colour, it buries itself in the earth. Lodged there, it forms for itself, from the soil, a strong oval cocoon; from which some of the earlier broods pass almost immediately into the perfect state, filled with *ova*, and ready quickly to supply another generation

of destroyers. So complete and so rapid was the destruction in some instances, that a whole field was found, in two or three days, to present only an assemblage of skeletonized leaves; and this too when the turnips had attained a considerable size.

The insect whose proceedings have been thus briefly noticed, belongs to the *Hymenopterous* family *Tenthredinidæ*; it is the *Athalia Centifoliæ*, a species first noticed by Panzer. Mr. Yarrell describes the perfect insect and the caterpillar; and then recurs to the damage effected by the latter. By their repeated broods the devastation was continued for so long a time that even the third sowing did not in all cases escape destruction; and it was not until the occurrence of the heavy rains in September, terminating the unusually dry summer, that the mischief ceased. The destruction of the leaves caused, in most instances, the loss of the root also; and where the leaves suffered from the attacks of the black caterpillar, but not sufficiently to occasion the death of the plant, the turnip itself became pithy and of little value. It has become necessary, Mr. Yarrell states, to import the root largely from the Continent to supply the deficiency of the home crop.

The remedial measures adopted on a former visitation were the turning into the infested fields of a large number of ducks, who greedily devoured the caterpillars as they were brushed from the leaves by a boy with a long pole; the passing of a heavy roller over the ground at night, when the caterpillars were at their feed; and the strewing of quick lime by broad cast over the fields, renewing it as often as it was dispersed by the wind. The latter mode was generally considered as the most effectual preservative.

December 8, 1835.

William Yarrell, Esq., in the Chair.

Specimens were exhibited of various *Birds*, chiefly from the Society's collection, which Mr. Gould regarded as hitherto undescribed. At the request of the Chairman he pointed out the distinguishing peculiarities of the undermentioned species.

PHŒNICURA PLUMBEA. *Phæn. nigrescenti-cinerea*; caudæ tectricibusque superioribus castaneo-rubris; remigibus nigrescenti-brunneis, cærulescenti-griseo fimbriatis.

Fœm. *Suprà brunnescenti-cinerea, uropygio albo*; rectricibus duabus intermediis brunneis, basin versus albis reliquis ad apicem brunneis; pectore cinereo, plumis singulis lunulis alternatim brunneis albidisque notatis; remigibus brunneis; secundariis cinereo-brunneis maculâ parvâ albâ ad apicem notatis.

Long. tot. $5\frac{1}{4}$ poll.; alæ, 3; caudæ, 2; tarsi, $\frac{7}{8}$; rostri, $\frac{5}{8}$.

Hab. apud montes Himalayenses.

This bird is in every respect a typical example of the genus *Phœnicura*. It is rather less in size than *Phæn. Rutililla*, Swains.

PYRGITA CINNAMOMEA. *Pyrg. suprâ cinnamomea, dorso in medio nigro longitudinaliter maculato*; alis caudâque brunneis, illis albo prope scapulam unifasciatis; guldâ nigra; genis, colli lateribus, corporeque subtus cinerascenti-albidis.

Long. tot. $4\frac{3}{4}$ poll.; alæ, $2\frac{3}{4}$; caudæ, 2; tarsi, $\frac{5}{8}$.

Rostrum nigrum; pedes brunnei.

Hab. apud montes Himalayenses.

Rather less in size than *Pyrg. montana*.

MERULA CASTANEA. *Mer. castanea*; capite colloque cinereo-albidis, gutture pallidiorè; alis caudâque nigris; tectricibus caudâ inferioribus crissoque albis nigro variis.

Long. tot. $11\frac{1}{2}$ poll.; alæ, $5\frac{3}{4}$; caudæ, $5\frac{1}{2}$; tarsi, $1\frac{3}{8}$; rostri, $1\frac{1}{8}$.

Rostrum pedesque flavescenti-brunnei.

Hab. apud montes Himalayenses.

SAUROPHAGUS SWAINSONII. *Saur. suprâ brunnescenti-cinereus*; capite nigro, cristâ occultâ aurantiaci; caudâ nigrescenti-brunnea, rectricum exteriorum marginibus omniumque apicibus cinereo-albis; alis brunneis, scapularibus secundariisque cinereo-albido marginatis; corpore subtus albo.

Long. tot. 8 poll.; alæ, 4; caudæ, $3\frac{1}{2}$; rostri, $1\frac{1}{4}$; tarsi, vix 1.

Rostrum pedesque nigri.

Hab. in Americâ Australi.

BRACHYPUS GULARIS. *Brach. flavus, suprâ olivaceo tinctus; capite auribusque nigris; caudâ olivaceo-brunneâ; remigibus brunneis.*

Long. tot. $5\frac{3}{4}$ poll.; *alæ*, $4\frac{5}{8}$; *caudæ*, $3\frac{1}{2}$; *rostri*, $\frac{5}{8}$; *tarsi*, $\frac{5}{8}$.

Rostrum nigrum; pedes saturatè brunnei.

Hab. in Indiâ Orientali apud Travancore.

More diminutive in size than *Brach. dispar*, Horsf., but nearly allied to it.

Genus STENORHYNCHUS.

Rostrum capite longius, gracile, compressum, subfornicatum; mandibulâ superiore leviter emarginatâ, culmine in frontem depressissimum producto.

Nares ovales, apertæ.

Alæ breviusculæ, subrotundatæ; remige 1mâ brevissimâ, 4tâ longiore; 5tâ et 6tâ 4tam subæquantibus.

Cauda mediocris, rotundata; *rectricibus* decem?

Pedes robusti: *acrotarsiis* subscutellatis; *halluce ungueque* postico fortibus, *tarsum* longitudine subæquantibus, *digito* intermedio brevioribus.

Plumæ molles.

STENORHYNCHUS RUFICAUDA. *Sten. suprâ sordidè saturatè brunneus, rufo caudam versus tinctus; caudâ, secundariis, scapularibusque saturatè rufo-brunneis; subtùs brunnescenti-cinereus, in rufo-brunneum ad latera vergens.*

Long. tot. $9\frac{1}{2}$ poll.; *rostri*, $1\frac{3}{4}$; *alæ*, $4\frac{3}{4}$; *caudæ*, $3\frac{1}{2}$; *tarsi*, 1.

Rostrum nigrum; pedes brunnei.

Hab.

As only one specimen of this bird has yet been seen, it is doubtful whether it may not possess twelve tail-feathers; but, after a careful examination, Mr. Gould can discover no more than ten.

MERULA NESTOR. *Mer. fuliginoso-nigra; capite colloque sordidè cinereis; caudæ tectricibus inferioribus maculâ longitudinali flavescenti-albidâ notatis.*

Long. tot. $7\frac{3}{4}$ poll.; *rostri*, 1; *alæ*, $4\frac{3}{8}$; *caudæ*, 3; *tarsi*, $1\frac{1}{2}$.

Rostrum tarsique flavi.

Hab. in Novâ Cambriâ Australi.

This appears to be in every respect a true *Merula*. It is the first of that genus that has been received from New Holland. It formed part of Captain Sturt's collection made in the Murrumbidgee country.

IANTHOCINCLA PECTORALIS. *Ianth. ferrugineo-cinerea; capite suprâ olivaceo-cinereo; cervice lateribusque ferrugineis; plumis aures tegentibus cinereis, rachibus nigris; lineâ nigra a basi mandibulæ inferioris aures cingente cum alterâ pectus lunulatim circumdante conjunctâ; corpore subtùs albo; remigibus brunneis, pogoniis externis cinereis; caudâ rotundatâ, basin versus olivaceo-*

cinerea, in medio nigro unifasciatâ; reatricibus extimis tribus utrinque albo, cæteris olivaceo-cinereo, apiculatis.

Long. tot. $12\frac{1}{2}$ poll.; rostri, $1\frac{1}{2}$; alæ, $5\frac{1}{2}$; caudæ, $5\frac{1}{2}$; tarsi, 2.

Rostrum nigrescenti-brunneum; tarsi brunnei.

Hab. in Nepaliâ.

IANTHOCINCLA ALBOGULARIS. *Ianth. suprâ et ad pectus olivaceo-cinerea, subtùs ferrugineo-aurantiaca; caudâ rotundatâ, olivaceo-cinerea, reatricibus extimis utrinque quatuor ad apices latè albis.*

Long. tot. $11\frac{1}{2}$ poll.; rostri, $1\frac{1}{2}$; alæ, $5\frac{1}{2}$; caudæ, $5\frac{1}{2}$; tarsi, $1\frac{1}{2}$.

Rostrum tarsiqque brunnei.

Hab. apud montes Himalayenses, in Nepaliâ, &c.

Nearly allied to *Ianth. leucolopha*, (*Corvus leucolopha*, Lath.).

A paper was read, entitled "Mémoire sur une Nouvelle Espèce de Poisson du Genre *Histiophore*, de la Mer Rouge: par M. E. Rüppell, M.D., Memb. Ext. Z. S." It was accompanied by a drawing of the fish described in it.

MM. Cuvier and Valenciennes have described, in their 'Histoire Naturelle des Poissons,' three species of *Sword-fishes* of the genus *Histiophorus*; from all of which Dr. Rüppell regards his fish as distinct, although it apparently approaches most nearly to *Hist. Americanus*: it should seem that its occurrence at Djetta, on the coast of Arabia, was only accidental, as the Arab fishermen knew no name for it. The most striking peculiarity of the new species is the uniformity of the colour of its dorsal fin: in all those which were previously known the first dorsal fin is varied with spots; in the one obtained by Dr. Rüppell, the first dorsal fin is black throughout and destitute of spots, on which account its discoverer proposes for it the name of

HISTIOPHORUS IMMACULATUS. *Hist. pinnis pectoralibus mediocribus; dorsali nigra, immaculatâ.*

D. 47, 0+7. A. 10, 0+7. C. 5+17+5. P. 1+19. V. 3.

Pinnæ pectorales quam in *Hist. Indico*, Cuv. & Val., multo minores: utpote quæ in illo $\frac{1}{2}$ vel $\frac{1}{7}$ corporis longitudine æquant, in *Hist. immaculato* $\frac{1}{3}$ tantum. In *Hist. pulchello* præoperculi angulus spinâ munitus: in *Hist. immaculato* aliisque inermis. *Hist. Americani* pinna dorsalis cinereo-argentea, maculis brunneis rotundatis ornata.

Dr. Rüppell describes the fish in considerable detail. He has not, however, examined it anatomically, on account of his possessing only one specimen, which he had deposited in the Frankfort Museum.

The following notes by Sir Robert Heron, Bart., were read.

"In many books that I have seen some errors are made in the history of the *Kangaroos*, which my long possession of those animals enables me to correct.

"The *great Kangaroo* does not make use of his tail in leaping. He uses it in walking, and still more in standing. When excited,

he stands (the male only) on tip-toe and on his tail; and is then of prodigious height. In fighting he does not stand on the tail and one leg, but balances himself for a moment on the tail only, and strikes forward with both hind legs.

“The *bush Kangaroo*, or *Kanguru enfumé* of Cuvier, never uses his legs in fighting. He generally contents himself with threatening with his teeth and a low growl; but I have seen him, when attacked by an *Emu*, jump up at the bird’s head. Neither of them, however, has persevered in annoyance.

“When sitting in a state of repose the *great Kangaroo* throws the tail behind him: the lesser one before him, between his legs.”

The following note by Sir Robert Heron, Bart., was also read, as giving an account of an extraordinary instance of want of sagacity in a *Dog*.

“A large old white female terrier followed me this autumn from Grantham. She remained perfectly satisfied for three weeks, when, on my again going to attend the petty sessions, she again followed me. I then found that she belonged to one of my colleagues, the Rev. Mr. Ottley; and that she had long been a great favourite in the family, who were greatly distressed at her loss. It happened that Mr. Ottley and I each rode a chestnut pony with a long tail. This had completely deceived the dog, whose unsentimental friendship did not prompt her to ask any further questions.”

December 22, 1836.

E. S. Hardisty, Esq., in the Chair.

Specimens were exhibited of several *Rodent* animals collected during his survey of the Straits of Magalhaens, by Capt. P. P. King, R.N., Corr. Memb. Z. S., and presented by him to the Society. They were accompanied by some notes by Capt. King, which were read.

In bringing the animals severally under the notice of the Meeting, Mr. Bennett first directed particular attention to one of them, which constituted, in his estimation, a new species in the genus *Ctenomys*, Blainv. To elucidate its relations with the nearly allied genera of *Herbivorous Rodentia*, *Octodon*, Benn., and *Poephagomys*, F. Cuv., a specimen of *Octodon Cumingii* was exhibited and compared with it; and Mr. Bennett stated his intention of entering with some detail into the subject in a paper which he proposed to prepare upon it.

In the structure of its molar teeth, *Octodon* may be regarded as occupying an intermediate station between *Poephagomys* and *Ctenomys*. In *Octodon* the molars of the upper jaw differ remarkably in form from those of the lower. The upper molars have on their inner side a slight fold of enamel, indicating a groove tending in some measure to separate on this aspect the mass of the tooth into two cylinders: on their outer side a similar fold penetrates more deeply, and behind it the crown of the tooth does not project outwardly to so great an extent as it does in front. If each molar tooth of the upper jaw be regarded as composed of two partially united cylinders, slightly compressed from before backwards, and somewhat oblique in their direction, the anterior of these cylinders might be described as entire, and the posterior as being truncated by the removal of its outer half. Of such teeth there are, in the upper jaw of *Octodon*, on each side, four; the hindermost being the smallest, and that in which the peculiar form is least strongly marked. In *Ctenomys*, all the molar teeth, both of the upper and the lower jaw, correspond with the structure that exists in the upper jaw of *Octodon*, excepting that their crowns are slenderer and more obliquely placed, whence the external emargination becomes less sharply defined; and also excepting that the hinder molar in each jaw is so small as to be almost evanescent: as is generally the case, however, the relative position of the teeth is counterchanged, and the deficiency in the outline of the crown of the tooth, which in the upper jaw is external, is, in the lower jaw, internal. In the lower jaw of *Octodon* the crowns of the molars assume a figure very different from those of the upper, dependent chiefly on the prolongation of the hinder portion of the tooth to the same lateral extent as its anterior part: each of them

consists of two cylinders, not disjoined in the middle where the bony portion of the crown is continuous, but partially separated by a fold of enamel on either side producing a corresponding notch; placed obliquely with respect to the jaw they resemble, in some measure, a figure of 8 with its elements flattened obliquely, pressed towards each other, and not connected by the transverse middle bars. With the lower molars of *Octodon* those of *Poepbagomys*, as figured by M. F. Cuvier, correspond in structure in both jaws. *Octodon* thus exhibits, in its dissimilar molars, the types of two genera: the molars of its upper jaw represent those of both jaws of *Ctenomys*; those of its lower jaw correspond with the molars of both jaws of *Poepbagomys*.

The characters distinguishing the new species of *Ctenomys* are chiefly those of colour. The *Cten. Brasiliensis* is described by M. de Blainville as being shining rufous above, and reddish white below. The new species may be characterized as the

CTENOMYS MAGELLANICUS. *Cten. flavescenti-fusco-griseus, subtùs pallidior; pedibus caudàque albescentibus.*

Long. corporis cum capite $7\frac{1}{2}$ unc.; caudæ, $2\frac{3}{4}$; capitis, 2.

Hab. apud Portum Gregory dictum, ad Fretùs Magellanici ostium orientale.

Captain King states that this "little animal is very timid; feeds upon grass; and is eaten by the Patagonian Indians. It inhabits holes, which it burrows, in the ground: and, from the number of the holes, it would appear to be very abundant."

A second animal exhibited appears, like the preceding, to represent in the more southern latitudes of South America a genus whose type was originally observed in Brasil. Mr. Bennett regarded it as a second species of *Kerodon*, F. Cuv., chiefly distinguishable from the one discovered by Prince Maximilian of Wied by its more uniform colour. Excepting a slight dash of white behind the ear, and a longer line of the same colour marking the edge of each branch of the lower jaw, the animal is entirely grey; the upper surface being distinguished from the under by a greater depth of tint, and by the intermixture of a free grizzling of yellow and black. The crowns of the molar teeth, as in the typical species, consist of bone surrounded by two triangles of enamel, the bases of which are connected together by a short line of enamel passing from the one to the other: all the lines being slender and sharply defined.

For this species Mr. Bennett proposed the name of

KERODON KINGII. *Ker. griseus, suprà flavo nigroque punctulatim interstictus; maculá pone aures linedque ad maxillæ inferioris marginem albis.*

Long. corporis cum capite $9\frac{1}{2}$ unc.; capitis, $2\frac{1}{2}$; auricula subnulla.

Hab. apud Portum Desire dictum, ad Patagoniæ littus orientale.

The third animal exhibited was remarked on as constituting a new species of *Cavy*, distinct from all those that were previously known,

including the two which have recently been described by M. Brandt in the 'Nouveaux Mémoires de l'Académie Impériale de St. Petersburg.' Mr. Bennett characterized it as the

CAVIA CUTLERI, King MSS. *Cav. brunnescenti-nigra; subcristata; genis in medio nudiusculis.*

Long. tot. 10 unc.; *capitis*, 3.

The general form of the animal is probably similar to that of the *restless Cavy*, *Cavia Cobaya*, Gmel., popularly known as the Guinea-pig. It is covered universally by long, smooth, glossy, black hairs, which are slightly tinged with brown. Its ears are rather large, broadly expanded, and hairy; and between them the hairs are longer than those on the adjoining parts, occasioning a slight appearance of a crest. On the middle of each cheek the hairs radiate as from a centre, almost in a similar manner to that in which they spread from around the crown of the *bonneted Monkeys*, and the skin is consequently left in the middle point almost bare. The dentition is altogether that of the *restless Cavy*, and the incisors, as in it, are white. The skull is rather more expanded laterally, which gives to it an appearance of comparative flatness.

"This animal was known, on the survey, by the name of the *Peruvian Cavy*. The specimen in the Society's collection was presented to one of the officers of the *Beagle* by an American sailing-master, of Stonington, U.S., a very intelligent person, to whom we were much indebted. The trivial name which I have proposed for it is in recollection of the benefit we derived from his experience and knowledge of the intricate navigation of the south-western coast of Patagonia, which was freely imparted to us on several occasions."—P. P. K.

The collection also contained specimens of a *Mouse*, for which Mr. Bennett proposed the name of

MUS MAGELLANICUS. *Mus caudæ corpus caputque longitudine æquantæ; suprâ saturatè subflavicanti-fuscus; subtùs albidus; pedibus albis.*

Long. corporis cum capite 4½; *caudæ* longitudo eadem; *pedis postici*, 1.

Hab. apud Portum Famine dictum, in Fretu Magellanico.

The ears are of moderate size, rounded, and hairy.

Specimens were exhibited of several *Marsupialia*, on which Mr. Ogilby made the following remarks.

"A small collection of *Marsupial Quadrupeds*, which Mr. Gould lately received from his brother-in-law, Mr. Coxen, contains two or three interesting species, which the usual kindness of Mr. Gould enables me to notice. They were all procured, as I am informed, in the country beyond the Hunter River, about eighty miles north of Sydney in New South Wales. The most remarkable is an undescribed species of *Phalanger*, which I propose to call

Phalangista Canina. It is similar in size and general proportions

to *Phal. Vulpina*, and the two allied species described in the 'Proceedings' for 1830-31, (page 135,) but is easily distinguished from them all by the small size and round form of the ears, as well as by the distribution of the colours. All the upper parts of the body, the head, cheeks, back, sides, and outer face of the arms and thighs are of a uniform grizzled brown; the throat, breast, belly, and interior of the members dirty ashy grey with a slight shade of yellow. The ears are only an inch in length and about the same in breadth, being thus little more than half as long as in *Phal. Vulpina*. They are naked within, but covered with deep coffee-coloured fur on the outside; the nose, and the paws, both before and behind, are dark brown; and the tail is bushy and entirely black to within about 2 inches of its root, which is of the same colour as the back. All these circumstances distinguish the present species from *Phal. Vulpina*, with which alone it can possibly be confounded, and in which the backs of the ears, and the cheeks and paws are yellowish white, whilst the black colour occupies only the latter half of the tail. Both these animals have long black *vibrissæ*, and a tuft of similar stiff hair on the cheek, about an inch below and behind the eye. The whole length from the nose to the root of the tail is 2 feet; the length of the tail 13½ inches.

Phal. Cookii. I notice this species merely to observe that the present specimen is the only certain evidence we possess of this animal being an inhabitant of Continental Australia. Cook observed it in Van Diemen's Land, and I had never been able to ascertain the precise locality from which the various other individuals I had formerly examined, were obtained.

Macropus Eugenii. This specimen agrees with M. Desmarest's description, and is interesting as coming from a very distant part of the country.

Perameles obesula. An adult specimen of the same size as the full-grown *Per. nasuta*. I notice it to mention that the teeth are, in all respects, similar to those of *Per. nasuta*, both in form and number.

The collection contains besides, two very fine specimens of *Petaurus Taguanoides*; one of *Pet. Sciureus*; one of *Hydromys chryso-gaster*; and a young *Koala*.—W. O.

Specimens were exhibited of numerous *Shells* of the genus *Mitra*, Lam., and of one species of *Conoelix*, Swains., forming part of the collection of Mr. Cuming; and the following account of them by Mr. Broderip was read.

"The species of the genus *Mitra*, Lam., which I am about to describe had been sent by Mr. Cuming, in whose cabinet they are, to Mr. Swainson, whose intimate acquaintance with this family renders him so particularly competent to the task of describing them. They were named by him, and he also made notes respecting them before returning them. In the following account of them I have retained Mr. Swainson's name in every instance but one: and whenever he has made any written observations I have quoted them.

Genus MITRA, (Lam. & Swains.).

MITRA NEBULOSA. *Mitra testá turrítá, striis impressis cinctá, pallidè flavá maculis castaneo-fuscis pictá; columellá obsoletè sexplicatá: long. $1\frac{2}{3}$ poll., lat. $3\frac{1}{2}$ poll.*

Hab. ad Insulam Annaan.

Mr. Cuming found this species on the reefs at low water.

Mr. Swainson, whose name is retained, has the following observation: "representing *nubila*." "Type 5, 1."

MITRA SWAINSONII. *Mitra testá turrítá, valdè productá, levigatá, pallidè carnea, apicem versus pallidè brunnea, striis transversis cinctá; columellá quadriplicatá: long. 6, lat. 1. poll.*

Hab. ad Colombiam Occidentalem. (Monte Christi.)

Dredged up from sandy mud by Mr. Cuming in seven fathoms water.

This shell has been much exposed, and its colour is faded.

The following remark appears on the cover: "Type 1, 1."

MITRA ANCILLIDES. *Mitra testá turrítá, minutissimè transversim striatá, totá pallidè flavá; columellá quinqueplicatá: long. 5, lat. 2 poll.*

Hab. ad Insulam Annaan.

Found on the reefs.

The following remark appears on the cover: "Type 5, (2?)."

MITRA MAURA. *Mitra testá turrítá, transversim minutè striatá, anfractibus torosis, totá nigricante; columellá albá, quadriplicatá; aperturá hiantè: long. $2\frac{1}{2}$, lat. $\frac{7}{8}$ poll.*

Hab. ad Peruviam. (Iquiqui.)

Found in the fissures of rocks, buried in sand, at low water mark.

On the cover is the following observation: "representing *Tiara foraminata*, Type 1, 4."

The older shells are eroded, especially towards the apex, like some of the freshwater turbinated shells.

MITRA FULVESCENS. *Mitra testá ovato-elongatá, fulvá, striis altis cinctá; columellá sexplicatá: long. $\frac{7}{8}$, lat. $\frac{1}{10}$ poll.*

Hab. ad Insulam Annaan.

Found on the reefs.

On the wrapper is the following observation: "Type 5, 1."

MITRA TESTACEA. *Mitra testá turrítá, acuminatá, rubro-lutescente, transversim striatá; columellá quinqueplicatá: long. $1\frac{1}{2}$, lat. $\frac{1}{3}$ poll.*

Hab. ad Insulam Annaan.

Found on the reefs.

Mr. Swainson has the following observation on the wrapper: "Type 5, 1. representing *fulva*."

MITRA FULVA, var. *Mitra testá turrítá, fulvá, striis transversis punctatis cinctá; suturá crenulatá; columellá sexplicatá; labro crenulato.*

Hab. ad Insulam Annaan.

Found on the reefs in shallow water.

The following observation appears on the wrapper: "Type 1, 2. representing *Tiara*."

MITRA CHRYSOSTOMA. *Mitra testá ovato-acuminatá, striis magnis subcrenulatis cinctá, flavescente castaneo maculatá, maculis magnis; columellá sexplicatá; labro subrubro-aureo, externè subcrenulato: long. $1\frac{2}{3}$?, lat. $\frac{1}{2}$ poll.*

Hab. ad Insulam Annaan.

Found on the reefs in shallow water.

On the cover is written, "Type 5, 1. representing *ferruginea*."

MITRA TRISTIS. *Mitra testá turrítá, suturis rotundatá, striis transversis cinctá, longitudinaliter costatá, atro-fuscá, suturis pallidè fasciatá; columellá quadriplicatá, plicis maximis; aperturá (in adultis) albido-purpurascente: long. $1\frac{1}{2}$, lat. $\frac{1}{2}$ poll.*

Hab. ad Sanctam Elenam et ad Insulas Gallapagos dictas.

Found in sandy mud at a depth of from six to ten fathoms.

On the cover, "Type 2, 4."

MITRA EFFUSA. *Mitra testá fusiformi, transversim valdè striatá, striis intermediis minimis; totá fuscá vel atro-castaned; columellá quadriplicatá, plicis duabus superioribus magnis; labro crenulato: long. $1\frac{2}{3}$, lat. $\frac{1}{4}$ poll.*

Hab. in Americâ Centrali (Guacomayo) et ad Insulas Gallapagos dictas.

Found in sandy mud at the depth of twelve fathoms.

On the cover, "Type 1, 5."

GENUS TIARA, Swains. (MITRA, Lam.)

TIARA FORAMINATA. *Tiara testá turrítá, longitudinaliter costatá, striis distantibus impressis inter costas hinc et hinc quasi foraminatis, costis magnis, sordidè fuscá, suturis rotundatá; columellá quadriplicatá, plicis maximis; aperturá sordidè albido-purpurascente: long. $2\frac{2}{3}$, lat. $\frac{7}{8}$ poll.*

Hab. ad Sanctam Elenam, ad Insulam Platam dictam, et ad Panamam.

Dredged up from sandy mud and gravel at a depth ranging from six to fourteen fathoms.

This appears to have been published in Mr. Wood's 'Supplement' under the name of *Voluta Lens*.

On the cover, "representing *Mitra maura*, Type 2, 4."

TIARA MURICATA. *Tiara testá longitudinaliter costatá, transversim striatá, costis submuricatis, totá brunned; columellá triplicatá: long. $\frac{5}{8}$, lat. $\frac{2}{3}$ poll.*

Hab. ad Insulas Gallapagos dictas.

Dredged up from sandy mud at a depth of six fathoms.

TIARA MUCRONATA. *Tiara testá longitudinaliter costatá, transversim striatá, striis sub-punctatis, anfractibus noduloso-muricatis præcipuè suturam versus, albida fusco vel ferrugineo fasciatá, fasciá basali latissimá; columellá quadruplicatá: long. 1, lat. $\frac{3}{8}$ poll.*

Hab. ad Insulam Taheiten.

Found in soft muddy sand at low water within the reef.

TIARA CATENATA. *Tiara testá ovatá, longitudinaliter costatá, albida suturam versus punctis sanguineis fasciatim dispositis concinna, apice subviolaceo, anfractu basali bifasciato, fasciis fusco-castaneis; columellá quadruplicatá: long. $\frac{5}{8}$, lat. $\frac{4}{10}$ poll.*

Hab. ad Insulam Annaan.

Found on the reefs in shallow water.

On the paper, "Type 1, 3."

TIARA MULTICOSTATA. *Tiara testá longitudinaliter multicostatá, transversim substriatá, brunnea vel ferruginea albo fasciatá; columellá quadruplicatá: long. $\frac{7}{8}$, lat. $\frac{3}{8}$ poll.*

Hab. ad Insulam Annaan.

Found on the reefs in shallow water.

In the ferruginous individuals the white band is nearly obsolete, and would almost justify their separation as a variety: but such individuals of that colour as have been submitted to me appear to be young.

TIARA ROSEA. *Tiara testá multicostatá, costis posticè subtuberculosis, creberrimè transversim sulcatá, roseá albo fasciatá; columellá quadruplicatá: long. $\frac{1}{2}$, lat. $\frac{3}{8}$ poll.*

Hab. ad Insulas Lord Hood's dictas.

Found on the reefs in shallow water.

On the paper, "Type 1, 2."

TIARA MILLECOSTATA. *Tiara testá subovatá, longitudinaliter creberrimè costatá, basi cancellatá, nigro-castanea, apice albido; columellá triplicatá: long. $\frac{1}{2}$, lat. $\frac{3}{8}$ poll.*

Hab. ad Insulam Annaan.

Found on the reefs in shallow water.

The close-set longitudinal ribs and cancellated base give this shell, which may not have attained its full growth, the aspect of a *Cancellaria*.

TIARA LINEATA. *Tiara testá fusiformi, albida hinc et hinc castaneo strigatá, lineis elevatis castaneis cinctá; columellá triplicatá; epidermide valdè tenui: long. 1, lat. $\frac{3}{8}$ poll.*

Hab. ad Salango Colombiæ Occidentalis.

Found on sandy mud in ten fathoms water.

The elevated lines run from the apex to the base like the threads of a screw.

On the paper, "Type 5, 1."

TIARA NIVEA. *Tiara testá fusiformi, albá, lineis creberrimis sub-*

punctatis transversis insculptâ ; columellâ quinqueplicatâ : long. $2\frac{1}{8}$, lat. $\frac{7}{8}$ poll.

Hab. ad Insulam Annaan.

Found on the reefs.

Minute longitudinal lines cross the transverse thick-set punctated ones, and with the punctures produce a somewhat cancellated appearance, which may be also detected by the touch.

The base of the *columella* is strongly developed, milk white, and shining, reminding the observer of the same part in *Ancillaria*.

On the paper, "Type 5, 3."

TIARA AURANTIA. *Tiara testâ turritâ, costis longitudinalibus striisque elevatis transversis subnodulosâ, aurantiacâ albo fasciatâ ; columellâ quadriplicatâ : long. $1\frac{1}{8}$, lat. $\frac{5}{8}$ poll.*

Hab. cum præcedente.

TIARA TEREBRALIS. *Tiara testâ fusiformi-turritâ, acuminatâ, carnâ aurantiaco nebulosâ ; anfractibus 11 seu 12, levibus, nitidis, longitudinaliter crebrè sulcatis, sulcis profundè impressis et lineis impressis spiralibus decussatis ; aperturâ brevi, angustâ, labio externo margine crenulato ; columellâ quadriplicatâ : long. 1.85, lat. 0.45 poll.*

Hab. ad Insulam Annaan.

Found on the reefs.

Mr. Swainson has written on the paper containing it, "Type 4, 4. This is one of the most extraordinary shells in the collection, as it so closely resembles the *Mitra Terebralis* that, but for its possessing the generic characters of *Tiara*, it might pass for the same species."

It is one of the most slender of its genus, and has very much of the general character and form of a *Terebra* ; and its resemblance to *Terebra* is increased by the circumstance of its having one spiral groove, more deeply impressed than the others, placed at about one third of the length of each volution before the suture. The points of contact of the decussating with the longitudinal grooves are deeply impressed.

There is a fine specimen in Mr. Broderip's collection.

Mr. Sowerby has furnished me with the account of this species.

TIARA CRENATA. *Tiara testâ fusâ, lineis subelevatis cinctâ ; columellâ triplicatâ : long. $\frac{5}{8}$, lat. $\frac{2}{8}$ poll.*

Hab. ad Xipixapi Colombiæ Occidentalis.

Found on sandy mud in six fathoms water.

On the paper, "Type 5, 3. or 3, 3."

TIARA RUBRA. *Tiara testâ minutâ, longitudinaliter costatâ, transversim minutissimè striatâ, rubrâ albo fasciatâ ; canali subreflexo columellâ quadriplicatâ : long. $\frac{4}{8}$, lat. $\frac{1}{8}$ poll.*

Hab. ad Insulam Lord Hood's dictam.

Found on *Meleagrina margaritifera*.

On the paper, "Type 1, 2."

TIARA SEMPLICATA. *Tiara testá ovato-fusiformi, glabrá, longitudinaliter plicatá, basi transversim striatá, castaned, anfractibus spiræ basi albo fasciatá, anfractu basali fasciá submediá albá cincto; columellá quadruplicatá: long. $\frac{1}{2}$, lat. $\frac{2}{3}$ poll.*

Hab. ad Insulam Rieteam.

Found on the reefs.

The basal whorl is only plaited on a comparatively small portion of its circumference, but this is evidently the result of malformation in the only specimen submitted to me.

TIARA ATTENUATA. *Tiara testá fusiformi, attenuatá, fuscá, lineis valde elevatis distantibus cinctá; columellá triplicatá; aperturá albidá, glabrá: long. $1\frac{1}{2}$, lat. $\frac{2}{3}$ poll.*

Hab. ad Insulam Cañam Americæ Centralis.

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Found on a rocky bottom at the depth of twenty-eight fathoms.

Approaching *Tiara lineata*, but differing from it. The basal whorl of *Tiara attenuata* is longer in proportion than that of *Tiara lineata*, and the elevated line on the angular shoulder of each whorl in the former is larger than the others.

On the paper, "Type 5, 1."

GENUS CONOELIX, Swains.

CONOELIX VIRGO. *Con. testá conicá, crassá, spirá depressá, lineis transversis subpunctatis insculptá, albidá, columellæ basi nigro-purpureá; epidermide subfuscá, tenuissimá: long. $\frac{2}{3}$, lat. $\frac{2}{3}$ poll.*

Hab. ad Insulam Rieteam.

Found on the reefs in shallow water.

On the paper, "representing *Conus Virgo*."—W. J. B.

The following observations by Mr. Swainson elucidate his notes in relation to the *Mitres*, appended to most of the preceding characters:—

"To render my explanation of the notes and references attached to the different species of the *Mitræ* more intelligible to conchologists, it will be necessary for me to state, in as few words as possible, the result of my investigation of this subfamily, and the principles which have regulated these numerical indications.

"I have already, in another work, characterized the family *Voluvidæ*, which appears to be that primary division of the *Carnivorous Gasteropoda* (*Zoophaga*, Lam.), which represents the *Rasorial* type among *Birds*, the *Ungulata* among *Quadrupeds*, and the *Thysanura* among perfect *Insects* (*Ptilota*): these analogies being of course remote, although founded on the structure of the animal, no less than on its testaceous covering. It thus follows that the Lamarckian *Mitræ*, instead of a genus, constitute a subfamily, which appears to be the subtypical group of the circle. The five genera composing this circle I have long ago characterized; and here, for some years, my analysis of the group terminated. The inspection, however, of the numerous species brought home by Mr. Cuming, and the gradually augmented number in my own cabinet, seemed to

invite a still further and more minute investigation, for the purpose of ascertaining if any, and what, subgenera were contained in the more crowded groups of *Mitra* and *Tiara*. This investigation was carried on, at intervals, for nearly twelve months; and the result surpassed my most sanguine expectations. It has convinced me that not only does each of the genera of the *Mitranae* represent analogically the corresponding groups of the *Volutinae*, but that the same relations can be demonstrated between the minor divisions of the genera *Tiara* and those of *Mitra*: in other words, that these latter represent all the subfamilies and genera of the other *Volutidae*, while they preserve their own peculiar or generic character. What I have just said on the parallel relations of analogy between the *Mitranae* and the *Volutidae*, is strictly applicable, in fact, to the genera *Mitra* and *Tiara*, the primary divisions of each of which can thus be demonstrated subgenera. Nor is this all: the materials I have been for so many years collecting have enabled me to ascertain, in very many instances, that the variation of the species, in each of these subgenera, is regulated on precisely the same principle. Hence it follows that the two circles of *Mitra* and *Tiara*, like the two divisions of Mr. MacLeay's *Petalocera*, contain species representing each other, so that if their generic character is not attended to, it is almost impossible to discriminate them even as species. Many instances of this extraordinary analogy might be mentioned, independent of that here alluded to, between *Mitra Terebralis* and *Tiara Terebralis*.

“Selecting this shell to illustrate the numbers “Type 4, 4”, I may observe, that ‘Type 4’ signifies that it belongs to the fourth subgenus of *Tiara*, in which group it is the fourth subtype, uniting to *Mitra maura*, which is the fourth subtype of the first or typical subgenus. *Mitra maura*, again, as representing this latter shell, consequently becomes the fourth subtype of the first or typical subgenus, and is therefore marked “Type 1, 4.” The first figure always denotes the subgenus, and the last the station which the species appears to hold in its own subgenus.

“I am unacquainted with any group in the animal kingdom which demonstrates more fully than this does the law of representation. It may be mentioned, also, that nearly all the divisions I had long ago characterized, from the formation of the shells alone, have more recently been confirmed by a knowledge of their respective animals: a knowledge for which we are entirely indebted to the able naturalists who accompanied the French expedition on board the *Astrolabe*.”—W. S.

Specimens were exhibited of several hitherto undescribed *Cowries*, most of which have been brought to England within the last few years. They were accompanied by the following characters and descriptions by J. S. Gaskoin, Esq.

Genus CYPRÆA.

CYPRÆA FORMOSA. *Cypr. testâ ovato-globulosâ, tenui, sericeo-sub-*

nitente, pallidè rosed, subnebulosá, anticè saturatiore, basi albidá ; costis numerosis, confertis, continuis, ad basin non interruptis ; margine subincrassatá ; aperturá latiusculá ; lined dorsali nullá.

Shell ovato-globose, posterior end rather obtuse and broad, of a delicate rose (almost white) colour, somewhat clouded with very light reddish brown, which is deeper over the anterior extremity. Base white, somewhat even. Aperture rather wide : teeth of the lip about twenty-one, almost every alternate rib (about fifteen in number) terminating between the denticulations just before arriving at the edge of the lip ; teeth of the *columella* about twenty-five, and about seven terminate exterior to the aperture : columellar front grooved along its entire length, inner edge of the groove slightly serrated, forming a circular projection towards the anterior extremity, where it is deepest and widest. Ribs slightly prominent, numerous, close, extremely even and regular, extending continuously from the lip to the inner border of the columellar groove, very few terminating on the sides of the shell : false ribs few, and extending but little towards the back. Anterior beaks rather wide apart, slightly produced : beaks of the lip longer than those of the *columella*. Spire only traceable in the adult, and in the younger state forming a fine small point or *apex*. Margin only on the lip side, and slightly thickened. No dorsal line.

Length .425 of an inch ; breadth .350 ; height .325.

The younger specimens of this beautiful shell are of a fine clear, semipellucid, rose (almost white) colour, with the light reddish brown markings at the anterior and outer extremity of the shell, and at the point of the posterior beak of the lip, more conspicuous than in the adult, while the cloudings are less observable.

Habitat. Cape of Good Hope.

From *Cypr. Europæa* it is distinguished by the following characters : greater convexity of the curvature of the inner edge of the columellar groove ; ribs and teeth much more numerous and even, and on the lip almost every alternate rib terminates before arriving at its edge ; shape more gibbous and obtuse posteriorly ; mouth wider ; spire scarcely visible in the adult, and forming a beautifully minute point in the younger individuals ; texture and colour of the shell infinitely more delicate.

Cab. Gaskoin.

CYPRÆA RUBINICOLOR. *Cypr. testá ovato-subglobosá, utrinque subrostratá, rubellá, extremitatibus pulchrè roseo-rubris ; labro incrassato, convexo ; costis acutis, continuis, indivisis ; lined dorsali nullá.*

Shell ovato-globose, of a light red or pinkish colour ; the four beaks, particularly on the base, of a much deeper red. Base roundish. Aperture and margins lighter coloured. Margins thickened, somewhat produced, in short, rather broad beaks. Aperture rather narrow, and inner edge of the lip nearly circular. *Columella* somewhat ventricose towards the middle, concave towards the anterior end : teeth numerous and even ; on the lip about twenty, proceeding across the back, forming ribs, and continuing over the *columella*, pass through

the frontal groove, converging towards the middle, and terminating at its inner border in a very slightly curved serrated edge; one or two ribs terminate near the middle of the back. False ribs few, and terminating in teeth only between the beaks. No dorsal line.

Length .475 of an inch; breadth .400; height .250.

Habitat.

Its distinctive characters from *Cypr. sanguinea* are: teeth much more numerous and even; no ribs terminate on the lip, rarely more than one or two on the side of the back, and they are of the colour of the shell; colour much lighter, and the beaks on the base deepest-coloured.

Cab. Gaskoin.

CYPRÆA PRODUCTA. *Cypr. testâ ovato-subglobosâ, basi planulatâ, transversim costatâ, albidâ; marginibus crassiusculis, ad extremitates subdepressis; aperturâ angustiore, labri margine subrectâ, columellæ flexuosâ, acutangulâ; lineâ dorsali nullâ.*

Shell ovato-subglobose, of a uniform dull white colour. Aperture rather narrow: teeth prominent and even, about twenty-six on the lip, and twenty-three on the *columella*; between the beaks there are about five or six rather strongly marked denticulations. The columellar edge of the aperture forms a sharp line, within which is a broad and rather deep groove, extending the length of the mouth, deeper at each end; the ribs, extending through it, form on its inner border a denticulated line, and they are more acutely prominent within the aperture than on the outside of the shell. Ribs prominent, smooth, (interstices uneven,) many terminating on the side of the shell at various distances from the middle of the back, those continuing to the middle about fifteen, a few only of which are continuous down the opposite side, the rest terminating in the centre of the *dorsum* between each other, but not in obtuse or thickened ends: false ribs about six posteriorly and eight anteriorly, and, like those in the *Cypr. sanguinea*, extending high up towards the back. Extremities much produced, somewhat flattened. Margins thick. No impressed dorsal line. Anterior beaks wider apart than the width of the aperture, and within each of these beaks is a slight impression or groove.

Length .500 of an inch; breadth .375; height .300.

Habitat.

It is thus distinguishable from *Cypr. scabriuscula*: it has no dorsal line; ribs much larger and prominent; has wide margins; a broad and flattened base; a slight groove within the anterior beaks; extremities much produced and flattened, &c.

Cab. Gaskoin.

I am indebted for the very appropriate appellation of this species to my friend Mr. Gray.

CYPRÆA CANDIDULA. *Cypr. testâ ovato-globulosâ, latere columellari subventricoso, nivedâ; extremitatibus columellaribus subcompressis; margine subincrassatâ; aperturâ subangustatâ, posticè recurvâ; labri dentibus numerosis confertis; costis ex aperturâ divergentibus; lineâ dorsali nullâ.*

Shell ovato-globose, the columellar side rather ventricose, entirely of a snow-white colour. Base somewhat flat. Aperture rather narrow, curved posteriorly. Columellar groove extending from one end of the shell to the other, rather broad, most so at the anterior extremity, not deep. Teeth even, somewhat numerous, small on the edge of the lip, on which there are about twenty-two; on the *columella* about thirteen, which converge towards the centre. Ribs rather prominent; some few terminate on either side of the shell, the rest pass continuously across it from the edge of the lip, and terminate in minute denticulations at the inner border of the frontal groove: false ribs a few. Anterior and posterior beaks of the *columella* divergent, and slightly projecting: extremities produced, and obtuse: marked denticulations between the anterior beaks. Spire scarcely visible, or forming a small blunt protuberance. No impressed dorsal line. Margin on the lip only and rather thick.

Length .312 of an inch; breadth .250; height .212.

Habitat. Mexico.

Distinguishable from *Cypr. scabriuscula* by the shell being much wider and shorter; aperture more curved; teeth and ribs much fewer; the extremities more obtusely produced, thicker and wider; columellar beaks more divergent and prominent; body of the shell more ventricose; anterior part of the columellar groove not so broad; no impression of a dorsal line.

Cab. Gaskoin.

The propriety of regarding this as a distinct species is confirmed from the coincidence of three persons having done so, without any communication or knowledge of each other, in three distant capitals, viz., Dr. Beck of Copenhagen, by the name of *Cypr. approximans*; M. Duclos at Paris, by that of *Cypr. olorina*; and myself in London, under the appellation of *Cypr. candidula*: and as I believe I am the first to describe it, it is perhaps right that I should retain, and apply to it, my own designation.

CYPRÆA ACUTIDENTATA. *Cypr. testâ candidâ, ovato-globulosâ, utrinque subproductâ; labro incrassato; costis acutis prominentibus, dorsum versus partim interruptis, opacis, interstitiis inæqualibus nitidulis; columellâ convexiusculâ, absque plicâ.*

Shell ovato-globular, white; extremities slightly produced. Aperture narrow, somewhat ventricose at the middle of the *columella*, and a little concave at the anterior end. Teeth numerous, about seventeen, thin, sharp, and prominent, continued to form the ribs, several of which terminate (especially at the outer part of the shell) before arriving at the summit of the back, and the teeth are consequently more numerous on the lip than on the *columella*; a deep depression at each end of the columellar side of the aperture caused by the abrupt termination of the *columella*, it not extending to the extreme ends of the aperture. Ribs rather thick, not crowded, prominent, the interstices between them somewhat shining; observed by a magnifier the ribs appear uneven; false ribs at both extremities, a few only forming teeth. No complete dorsal line, but a faint de-

pression. No depression or groove in front of the *columella*. Columellar side more gibbous than the outer, and the ribs continue entirely round it, converging towards the centre.

Length .300 of an inch; breadth .200; height .175.

Habitat. Isle of Muerte, Bay of Guayaquil.

Nearest in shape to *Cypr. exigua*, and in the manner of the ribs terminating on the back; but it is of a dull white colour, destitute of markings, and has no groove or depression in front of the *columella*, which distinguishes it from all other species of this form of *Cyprææ*.

Cab. Cuming.

I had the misfortune to break the only specimen that I have seen of this shell shortly after I had described it, but having submitted the description to the critical examination, with the shell, of Dr. Beck and Mr. Sowerby at the same time, I conclude this description may be received, although I have no specimen to show to the Society.

CYPRÆA PEDICULUS, var. labiosa. *Cypr. testd ovali, latâ, extremitatibus rotundatis; costis prominentioribus, nullis supra labium externum terminantibus; marginibus latioribus, crassioribus; lineâ dorsali profundiore, fusca; basi marginibusque cinerascenti-griseis; dentibus albis.*

Shell oval, of a reddish brown on the back, running into a blueish brown on the sides; six rather large dark brown spots on the back, three on each side the dorsal line, placed opposite to each other at the anterior, middle, and posterior parts of the back; base of a greyish brown colour, rounded and broad. Aperture rather wide, white within: teeth about twenty on the lip, white, prominent, even and distant, and all continuing evenly over the lip forming the ribs, several of which terminate on the side of the shell, the others (about twelve) at the dorsal line, in elevated and broad or thickened ends; on the *columella* there are about fifteen teeth, a few of which, continuing to form the ribs, terminate on the side of the shell, the rest at the dorsal depression, in a similar form to those on the opposite side; there are about two floating ribs, false ribs at each end. Columellar groove very shallow posteriorly, rather deeper and wider anteriorly; the teeth passing, slightly prominent, across it form a serrated edge at its inner border. Margins much thickened and produced, terminating in a coronated ridge all round the shell, scarcely more prominent at the extremities than on the outer or lip side. Extremities round. Dorsal line rather broad, deep, shining, and of a darker brown colour than the back.

Length .525 of an inch; breadth .410; height .320.

Habitat.

Differs from *Cypr. Pediculus* in being broader and shorter, and rounder at the extremities; in the colour and shape of the base; in having much more prominent ribs, and none terminating on the lip; margins infinitely thicker and broader; teeth white; dorsal line more impressed, &c.

Cab. Gaskoin.

This shell having some characters in common with *Cypr. Pediculus*, and as I have seen only this one specimen, I have felt it difficult to separate it entirely from that species; and on the other hand it has characters so different, that I scarcely know how to make it a member of that tribe: I have, however, placed it as *Varietas labiosa*; and should other specimens be found, I think it may be properly severed from its present associates, and retain that distinctive appellation.

CYPREÆ VESICULARIS. *Cypr. testâ inflatâ, subglobulosâ, subtrigondâ, rubellâ; costis transversis, approximatis, lævibus, concoloribus supra columellam continuis; aperturâ amplâ; labro intus albido, dentato.*

Shell ovato-subglobose, inflated; semipellucid, of a faint rose, or flesh colour. Aperture very broad, a little longer than the spire. Posterior part of the *columella* rather ventricose: the anterior forming a broadish groove, the inner border of which is most prominent at its middle, and the ribs passing through it terminate, at its posterior part, in a serrated edge, the anterior part being even and forming a smooth notch. Lip of a lighter colour than the rest of the shell, straight at its base, longer than the body of the shell, forming a very slight notch as it joins the columellar side at the posterior extremity, and anteriorly a broader and deeper one between the beaks. Beaks very slightly produced, and the anterior ones a little divergent. Teeth numerous and even, about twenty on the lip, and about twenty-three on the *columella*. Ribs even, close, numerous, not prominent, extending transversely across the shell in parallel lines, and passing entirely round the *columella* to its inner margin; about eight of the ribs terminate on the lip, and consequently form no denticulations, and almost alternately between the teeth from the anterior extremity, some few terminate on the outer part of the *columella*. Ribs very faintly marked on the back. No dorsal line. Margin a little thickened. Spire visible, depressed.

Length of the *columella* .475 of an inch; of the lip .525; breadth .450; height .350.

Habitat. Cape of Good Hope.

From *Cypr. aperta* it differs by the anterior columellar beak being divergent; posterior end of the shell blunter and broader; ribs infinitely more numerous and even, and extending entirely over the *columella* to its inner edge within the aperture.

Cab. Gaskoin.

CYPREÆ BECKII. *Cypr. testâ ovato-oblongâ, utrinque productâ, subrostratâ, subumbilicatâ, supernè pallidè fulvâ, punctis subocellaribus helvolis sparsis; margine suprâ subcrenatâ, basi quæ albis; labri dentibus crassiusculis, posterius lineolâ helvolâ notatis, columellæ gracilioribus, in culmen rectilineum terminantibus, medio obsoletioribus; sulco columellari profundo, recto, lævi, anterioribus et infernè denticulato.*

Shell ovato-oblong, of a light fawn colour, dotted distantly with minute slightly ocellated reddish brown *puncta*, which are larger

near the margins, especially the columellar, mixed with a few exceedingly faint minute spots lighter coloured than the ground. Base nearly white, rather flat. Aperture narrow: *columella* somewhat gibbous at the middle part: teeth, like the base, nearly white, even, not minute, extending half across the lip, on which there are about nineteen, coloured at their edges of a reddish brown colour, forming short lines; teeth of the *columella* about eighteen, forming an angular, slightly elevated, serrated, longitudinal ridge, more prominent at the anterior extremity; at the two extremities the teeth extend a little outwards, and are there marked, as on the lip, by reddish brown little lines. At the anterior portion of the front of the *columella* is a deep elongated groove, terminating outwardly in a deep notch, between the end of the ridge and the beak, with three or four denticulations at its inner border, not extending through it from the ridge. Extremities produced; the beaks divergent; the outer anterior and posterior beaks larger and a little longer than the inner. Internal colour the same as that of the base. Spire a little prominent, with a depression around it superiorly and laterally. Dorsal line almost obsolete.

The young has no markings on the teeth.

Length .450 of an inch; breadth .250; height .175.

Habitat.

Distinguished from *Cypr. Cumingii* by the brown lines or markings on the lips; teeth infinitely less numerous, and larger; dark brown ocellated dots on the back; aperture straighter and wider; shell more elongated and less gibbous; groove nearly around the spire; posterior channel more produced; beaks more equal; lip round; outer edge of the margin crenulated, &c.

Cab. Cuming.

Doctor H. Beck, the learned naturalist of Copenhagen, being at this time in our capital, I have taken advantage of the circumstance to date its period, by placing his name, now, to this new species of *Cypræa*.—J. S. G.

There was read an "Extrait du Quatrième Rapport Annuel sur les Travaux de la Société d'Histoire Naturelle de l'île Maurice: par M. Julien Desjardins."

The communications relative to the *Mammalia* read before the Natural History Society of the Mauritius in the fourth year of its existence have comprised an account by the secretary, M. Julien Desjardins, of a *Whale* which he regards as the *Physeter macrocephalus*, Linn., that was cast ashore on an adjoining reef: and some observations by the same author on several of the *Mammalia* of the island, and particularly on the hibernation of the *Tenrec*, *Centenes spinosus*, Ill.; the lethargy of which animal takes place when the thermometer is not lower than 20° Cent., and even when it marks 26°.

In ornithology M. Desjardins has also been the only contributor. He has described, as new, two *Birds* belonging to the island, and has proposed for them the names of *Charadrius Nesogallicus* and *Scolopax elegans*.

M. Liénard, the elder, has, in the course of the year, described many *Fishes*, including a new species of *Plectropoma*, allied to the *Plectr. melanoleuca*, Cuv. & Val., which is of a uniform brown colour, with all its fins of a still deeper brown, except the pectoral which are orange; on this latter character his specific name is founded: a *Holacanthus*, La Cép., from Batavia, remarkable on account of the numerous sinuous silvery lines which occupy principally the middle of the body; and having also on its face two yellow and two black bands, one of which is ocular: a *Cheilinus*, Cuv.: an *Echeneis*, Linn., furnished, on its suction disc, with twenty-five pairs of plates: and a *Muræna*, Thunb., the body of which is of an ebony black, and the dorsal fin yellow; the trivial name being indicative of the latter peculiarity. He has also given some account of a collection of *Fishes* obtained from the western coast of Madagascar, and comprising thirteen species, several of which he regards as new. M. Desjardins has described as the *blue-faced Tetrodon*, a species remarkable for two large blue spots on each side of its face, and having the fin rays as follows; D. 15. A. 12. P. 14. C. 14.: it inhabits the seas adjacent to the Isle of France.

In entomology the only communication made to the Mauritius Society was by M. Goudot, and related to the *Insect* described by Mr. Bennett at the Meeting of the Zoological Society on January 22, 1833. (Proceedings, Part i., p. 12,) under the name of *Aphrophora Goudoti*. The communication made to the Zoological Society, of which a full abstract is given at the page quoted, was apparently identical with that read before the Mauritius Society.

The remaining zoological communication related to the *Intestinal Worms*, and was made by the Secretary. It gave some account of the *Distoma hepaticum*, Cuv., as found in the stomach of a cow; and of the *Cysticercus Cellulosa*, Brems., existing in innumerable quantities over almost the whole of the head, trunk, and extremities of a sow.

An "Extrait du Cinquième Rapport Annuel" of the same Society, by M. Julien Desjardins, Corr. Memb. Z. S., was also read.

In the year of which the present Report gives an account, M. Desjardins has communicated to the Natural History Society of the Mauritius, a list of several species of *Birds* that are occasional visitors of that island; and has also referred particularly to the *Coturnix Sinensis*, Cuv., and the *Nectarinia Borbonica*, Ill., as stationary in the Mauritius.

M. E. Liénard has brought from the Seychelles a species of *Gecko* of considerable size; which he has described in a communication made to the Society: and M. E. Liénard has placed on record the existence in the adjacent seas of the *Sphargis coriaceus*, Merr.

M. Liénard, the elder, has again made numerous contributions to ichthyology. He has given a detailed description of the *Squalus Vulpes*, Linn.: has described as new a *Trichiurus*, Linn., which he had formerly regarded as the *Trich. lepturus*, Ej., but which has the eye much larger, more numerous *striae* on the *suboperculum*, and a few

more rays in the dorsal fin: and has also described two species of *Crenilabrus*, Cuv., which he regards as new; one of them has three longitudinal rose-coloured bands on the white ground of the body, others on the dorsal fin, a large blood-red spot on the ventral fins, and D. 12+10. A. 3+11; the other is banded like the preceding, but is deeply rose-coloured on the back and pale yellow below, has a black circle surrounding the base of the pectoral fin, a large red spot above the *anus*, the dorsal and caudal fins red, the anal and ventrals yellow, the pectorals rose-coloured, and D. 12+9. A. 3+11. He has also given a description of a *Murana*, Thunb., of a very pale olive yellow towards the front and brown towards the tail, and marked on the back by white ocellated spots bordered with brown.

In the same department M. E. Liénard has contributed descriptions, from recent specimens, of several *Serrani* described by Cuvier and M. Valenciennes in their 'Histoire Naturelle des Poissons'; and has also given a description of a *Blennius*, Linn., destitute of appendages on the head. These fishes were observed in a voyage to the Seychelle Islands, whence M. E. Liénard brought back with him to the Mauritius a *Chatodon* of very varied colours, which M. A. Liénard subsequently described under the name of *Chatodon diversicolor*. M. Desjardins has stated, in a note, that the *Mango fish*, *Polynemus longifilis*, Cuv. & Val., is not found, as had been announced, in the Isle of France. And he adds that he has prepared an alphabetical index to the nine volumes of the 'Histoire Naturelle des Poissons' that had then reached the Mauritius. M. Magon has presented to the Museum of the Society a fragment of a ship's coppered keel pierced by the point of the upper jaw of a *Histiophorus*, Cuv., which still remains infixed in it.

M. Desjardins has contributed the only notices relative to the *Mollusca*, which have consisted of short descriptions of three species belonging to the island: an *Octopus*, *Oct. arenarius*, Desj., found in the shell of a *Dolium*; a *Pupa*, of a red and yellow colour; and a small species of *Helicina*. He has also ascertained the existence at the Mauritius of the *Tornatella flammea*, Auct.

To the same active member the Mauritius Natural History Society is indebted for the only entomological communication made to it in the fifth year of its existence: it is a detailed description of a large species of *Iulus* brought from the Seychelles, and characterized as the *Iulus Seychellarum*, Desj.

Specimens were exhibited of various *Fishes*, forming part of a collection from Mauritius, presented to the Society by M. Julien Desjardins, and forwarded by him at the same time with the "Rapports de la Société d'Histoire Naturelle de l'Île Maurice." These were severally brought under the notice of the Meeting by Mr. Bennett, who called particular attention to the following, which he regarded as hitherto undescribed.

APOGON TENIOPTERUS. *Ap. altiusculus*; *fronte latiore: pinna dorsali priore maculâ elongatâ obliquâ inter singulos radios,*

secundâ analique vittâ prope basin, ventralibus maculis elongatis inter radios exteriores, caudalisque marginibus, nigris.

D. 7, 1+9. A. 2+8.

ACANTHURUS DESJARDINII. *Ac. pinnis altissimis: capite pectoreque cœruleo? punctatissimis; corpore reliquo lineis plurimis (cœruleis? flavis?) inter se sæpissimè fascias nigras includentibus, in pinnas verticales excurrentibus, ibique ad formam pinnae rotundatis; pinnis anali dorsalique anticè ad basin guttulatis; caudali pallidè per series irregulares punctatâ.*

D. 3+29. A. 3+23.

Dentes maxillæ superioris serrati, elongato-trigoni, ad apicem subrotundati; inferioris crenati, serrâ intermediâ elongatâ.

The peculiarities of the colouring of this *Fish*, Mr. Bennett stated, induced him to regard it as distinct from those figured under the name of *Ac. velifer* by Bloch and by Dr. Rüppell; which also he considered, on a comparison of the figures published by those authors, to be specifically different from each other, and distinguishable by the subjoined characters.

ACANTHURUS RUPPELII. *Ac. pinnis altissimis: capite pectoreque albido punctulatissimis; corpore reliquo infernè flavo guttato, supernè flavo transversim lineato lineis inter se sæpissimè fascias abbreviatis nigras includentibus; pinnis dorsali analique lineis incurvis plurimis illâque anticè guttis sparsis flavis notatis; caudali punctulis albidis per series verticalibus dispositis.*

“D. 3+29. A. 2+23.”

Acanthurus velifer, Rüpp., *Zool. Atlas zu Nord-Afrik. Reise*, tab. xv. f. 2.

Hab. “in Mari Rubro.”

ACANTHURUS BLOCHII. *Ac. pinnis altissimis: capite flavo punctato; corpore toto lineis albescentibus fascias saturatiores inter se sæpissimè includentibus transversim notato, lineis in pinnas verticales excurrentibus ibique per series incurvas guttarum cœrulearum dispositis; pinna caudali fasciatâ seriatimque punctulatâ.*

“D. 3+28. A. 2+21.”

Acanthurus velifer, Bloch, *Ichth.*, tab. 427. f. 1.

Dentes maxillæ superioris serrati, acutè elongato-trigoni.

Hab. “apud Tranquebariam.”

LABRUS SPILONOTUS. *Labr. pinna caudali sublunatâ: maculâ in initio pinnae dorsalis alterâque ad ejus finem maximâ, laterali, caudam supernè circumdante; pinnis dorsali analique ad basin squamis corpori conformibus vittatim vestitis.*

D. 12+10. A. 3+12.

Labro rubro-lineato, Comm., ut videtur, maximè affinis, et forsan idem. Dentes antici validi in utrâque maxillâ quatuor: superioris subæquales, distantes; inferioris duo intermedii minores subapproximati, inter intermedios maxillæ superioris (ore clauso) recepti, lateralis utrinque major ante lateralem maxillæ superioris (ore clauso) recepto.

ANAMPSES LINEOLATUS. *An. capitè corporeque crassis, illo anticè subrotundato, hoc cæruleo? lineolato; fasciâ linedque inter oculos notatus; pinnis dorsali analique cæruleo? marginatis, hæc insuper in medio vittatâ.*

D. 9+12. A. 3+12.

Ab *An. cæruleo-punctato*, Rupp., differt corpore et præsertim capite crassioribus, hoc anticè os versus minus producto; necnon picturâ, præsertim vittâ pinnæ analis. In *An. cæruleo-punctato* squamæ singulæ punctum, in *An. lineolato* lineolam corpori transversam gerunt. In hoc caput, nisi ad frontem labiaque, vix notatum; pinnaque caudalis, ut videtur, æquè haud notata.

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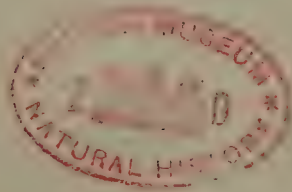
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PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY

OF LONDON.



PART IV.

1836.

PRINTED FOR THE SOCIETY,

BY R. AND J. E. TAYLOR, RED LION COURT, FLEET STREET.

