

I have little doubt that this bird is the true "*Hirondelle à queue pointue de Cayenne*" of Buffon. It is easily distinguishable from all the others by the white band across the rump. I have two examples, both from Cayenne.

April 21, 1863.

E. W. H. Holdsworth, Esq., F.Z.S., in the Chair.

The Secretary read the following letter, which had been addressed by Mr. Williams, H. B. M. Consul at the Samoan Islands, to Mr. George Sprigg of Melbourne, in reply to letters of inquiry respecting the possibility of obtaining living examples of the *Didunculus strigirostris* :—

“ British Consulate,
Apia, Upolu, Samoa,
19th November, 1862.

“ MY DEAR SIR,—I have the pleasure to acknowledge the receipt of your favour, dated April 8th, 1862, with its inclosures. In reply, I would say that I have been over twenty years trying to get one of the birds you write about, and have just, within the last two months, been fortunate enough to secure *one*, which is now thriving well ; and I hope that when I go to Sydney I shall be able to take it with me. Although, for myself, I should rather favour the Sydney Acclimatization Society, yet, as you have first written to me about the bird, I should think it only just to give you the first offer. I have had great difficulty in obtaining the bird ; for they are nearly extinct, having been destroyed by the wild cats. The Rev. J. B. Stair’s account of the bird is very correct.

“ I hope to be in Sydney about May or June, when I shall be happy to hold any further communication with you, and, with kind regards,

“ I am,

“ My dear Sir,

“ Yours very truly,

(Signed)

“ JOHN C. WILLIAMS.”

“ To Mr. George Sprigg,
Melbourne.”

Dr. Selater also read the following extracts from a letter addressed to him by Dr. G. Bennett of Sydney, F.Z.S., dated January 19, 1863, referring to the same subject :—

“ I have now to send you all the information I have collected respecting that rare bird the *Didunculus*, to bring before the Society. I mentioned in a former letter that I had made arrangements with a gentleman about to visit the Navigators’ Islands to procure me

information respecting the existence of this bird, and, if possible specimens, dead or alive. I also gave him an accurately coloured drawing of the bird, copied from Gould's 'Birds of Australia.' On the 26th of December 1862, I received the following letter from him, dated from Apia, Navigators' Islands, November 1862 :—

"DEAR SIR,—According to my promise, immediately on landing, I made inquiries concerning the 'Manu Mea,' the result of which you will find detailed below. From inquiries made of the natives, I find that on this island (Upolu) the bird, if not totally, is almost extinct. Mr. Williams, the British Consul, had one, which he purchased for six dollars (25s.). I found, in the course of conversation, that a few might be found on the mountains at the island of Savaii, an island about thirty miles to the leeward of this place; and on mentioning the kind of bird to a gentleman here of the name of Trail, he told me that he knew of a bird answering the description and drawing in the possession of a native on Savaii, which he would procure and send to Sydney by the schooner 'Mechanic,' not having time to procure it before my departure, for £5. You will think the price high; but recollect that there are many scientific people who have been inquiring here and offering large sums for the bird.

"I am, dear Sir,

"Yours truly,

"J. O'HEA."

"On the 7th January Mr. O'Hea arrived in Sydney, and informed me that he had countermanded the bird, when procured, from being sent by any vessel until the return of his vessel (the 'J. K. Beatson') in two months, as he had ascertained the 'Mechanic' might not call at Savaii. He informs me that the *Didunculus* in Mr. Williams's possession is a very young bird, with the teeth of the mandible not well developed; it ran rapidly about the cage on any one looking at it, being very wild and not accustomed to confinement, and it was obliged to be driven in a corner of its cage to enable the spectator to have a good view of it. It had then been in Mr. Williams's possession only about six weeks. It is not now found at Upolu; but in the island of Savaii, the largest and most mountainous island of the group, it is thought it may still be procured, but is very rare.

"The natives were surprised at the great interest taken in the bird; and the numerous inquiries and large prices offered will lead them, I have no doubt, to place almost a prohibitory price upon it. Captain McLeod has also sailed for the Navigators' group, and has also a drawing of the bird, and will make every exertion to procure it. I have not limited him to any reasonable price, and I shall not object to give £5 to £10 a pair even for skins, as I expect the bird is nearly extinct, or only to be procured with great difficulty."

A letter was read from Ronald Gunn, Esq., Corr. Memb., dated Launceston, Jan. 19th, 1863, announcing the shipment of a living female Thylacine (*Thylacinus cynocephalus*) with three young ones for the Society. Mr. Gunn stated, with reference to this animal :—

"Like most of our animals, the Thylacine is nocturnal, inhabiting the remoter parts of the colony, and ascending to the tops of our mountains at an elevation of some 4000 feet above the sea. You need not, therefore, treat them as tender, as they are exposed to both frost and snow in our winter season, although, from the wooded character of our island, the shelter is very great and the cold necessarily much modified as compared with the climate of Britain,—our annual mean temperature being about $54^{\circ} \cdot 92$, the mean of the hottest month being about $63^{\circ} \cdot 57$, and of the coldest $45^{\circ} \cdot 82$. These temperatures are, however, from Hobart-Town observations; but the haunts of the Thylacines are where the temperature is much lower.

"They, invariably, will eat only what they kill, and that *fresh*; so that after killing a sheep they never (or very rarely) return to the dead carcase, but kill another. Hence it has been found impossible to kill them by means of strychnine and other poisons, as has been desired by our sheep-owners. In confinement, however, I have found them eat the meat furnished to them with avidity.

"The present one, in giving suck to its young, used to lie down like a dog, the skin of the pouch being thrown back so as to admit of the young ones getting easily at the teats. When alarmed, the young ones crawled in with their backs downwards, the mother assisting by lowering her hind quarters to facilitate their getting in; and by also placing her rump against the side of her cage to give the cubs a purchase with their hind legs against the cage, and thus push themselves in. They were so large when they left this, that when all in the pouch it hung down very low, and seemed almost a deformity."

The Secretary reported the arrival in the Society's Gardens, on the 31st of March, of a fine collection of birds from India, partly presented to the Society by the Babu Rajendra Mullick of Calcutta, and partly deposited in the Gardens by Mr. John J. Stone and the Rev. William Smythe. The collection shipped at Calcutta had consisted of fifty birds, thirty-five of which had reached the Gardens in safety, and the greater part of them in excellent condition, namely—

- 9 Horned Tragopans (*Ceriornis satyra*), 6 males, 3 females.
- 4 male Impeyans (*Lophophorus impeyanus*).
- 4 male White-crested Kaleeges (*Gallophasis albocristatus*).
- 1 male Cheer (*Catreus wallichii*).
- 1 male Pucras (*Pucrasia macrolopha*).
- 12 Hardwick's Spur-fowl (*Galloperdix lunulosa*).
- 1 male Polyplectron (*Polyplectron chinquis*).
- 3 Hornbills (*Buceros pica*).

The Secretary stated that the Society were greatly indebted to Mr. Stone for the arrangements he had made in facilitating the transport of these birds by the overland mail from Calcutta.

The following papers were read:—



5. Jovens del elitio

M. & N. Hanhart, Imp.

VIDUA EQUES

1. ON SOME BIRDS COLLECTED BY CAPT. J. E. SPEKE AT KAZEH
IN EASTERN AFRICA. BY DR. G. HARTLAUB, FOR. MEMB.

(Plate XV.)

[Of the collections spoken of by Capt. Speke in his letter addressed to me from Kazehe, read to the Society on the 13th January last (see *antea*, p. 1), only one box of birds and the sketches have as yet reached me. I have sent the birds to my friend Dr. Hartlaub, our best authority on African ornithology, for his examination; and the present paper gives the results of his investigations.—P. L. S.]

1. MELIERAX MUSICUS (Daud.).
2. HYPOTRIORCHIS SEMITORQUATUS (Smith).
3. HALCYON VARIEGATA (Vieill.).
4. HALCYON SENEGALENSIS (L.).
5. MEROPS ERYTHROPTERUS, Gm.
6. IRRISOR CYANOMELAS (Vieill.), av. juv.
7. CRATEROPUS JARDINII, Swains.
8. BASANISTES CISOIDES (Licht.).
9. PRIONOPS POLIOCEPHALUS, Stanl.

10. BRADYORNIS SPEKEI, n. sp. *Supra ex olivaceo rufescens, capite subcinerascens; alis et cauda cinnamomeo-rufis, subalaribus dilute fulvis, remigibus majoribus in dimidio apicali pogonii interni oblique fusco-nigricantibus; fascia gulari e maculis nigricantibus composita, utrinque ad angulum oris usque elongata; subtus isabellino-fulva, pectore cinerascens; subcaudalibus fulvis; pedibus et rostro nigris.*

Long. $7\frac{1}{2}$ ", rostr. a fr. 6"', al. 3" 5"', caud. 3" 9"', tars. 13'''.

A typical species, allied to the western *B. ruficauda*; tail long; feet rather large; beak rather slender; tertiaries nearest to the body all rufous; forehead and ocular region more rufescent.

I propose to name this fine new species after its zealous discoverer, Capt. Speke. It was collected at Meninga, and is figured in his sketches under the name of the "Morning Warbler;" the irides are described as of a light straw-colour.

11. DRYOSCOPUS FUNEBRIS, n. sp. *Ex ardesiaco niger; alis et cauda purius nigris, nonnihil fusciscentibus; uropygii plumis longis, laxis, albo variegatis; rostro et pedibus nigris.*

Long. circa 8", rostr. a fr. $9\frac{1}{2}$ ", al. 3" 7"', caud. $3\frac{1}{2}$ ", tars. 14'''.

This species is nearly allied to the western *D. carbonarius*, but is smaller, and may be distinguished by its more slender and more compressed beak, and by the iron-greyish shade of its black colour. There is no doubt about its being new.

Capt. Speke names this bird the "Black Metal-toned Whistler," and gives *Meninga* as its locality.

12. *DRYOSCOPIUS HAMATUS*, n. sp. *Supra niger, nitore nonnullo chalybeo; uropygii plumis longis, sericets, albis; subtus albus; subalaribus et subcaudalibus albis; tectricibus alarum et remigibus, primo et secundo exceptis, albo limbatis; rostro gracili, valde compresso, maxillæ apice uncinato, nigro; pedibus nigris.*

Long. circa 5" 10"', rostr. a fr. 8"', al. 3"', caud. 2½"', tars. 10''.

13. *ESTRELLA PHÆNICOTIS*, Sw.

14. *ESTRELLA MINIMA*, Vieill. (mutilated skin, the head wanting).

15. *SPERMESTES CUCULLATA*, Sw.

16. *EUPLECTES FLAVICEPS*, Sw.

17. *VIDUA PARADISEA* (L.).

18. *VIDUA MACROURA* (Gm.).

19. *VIDUA EQUES*, n. sp. (Pl. XV.) *Minor, nigra; macula scapulari majuscula, rufo-cinnamomea; subtus late nigro-marginata; margine axillari flavo-rufescente; subalaribus albis; remigibus omnibus basi niveis, speculum alarem formantibus; rostro margaritaceo, basi supra et infra plumbeo; pedibus nigris.*

Long. tota 6½'', rostr. a fr. 6'', al. 2'' 9'', caud. 3'' 6'', tars. 9''.

This fine and apparently undescribed species belongs to the division *Urobrachya*. It is one of the smallest of the whole group, and appears to be nearly related to the *U. albonotata* of Cassin, which, however, has the scapular spot of a pure rich yellow.

20. *TRERON NUDIROSTRIS* (Sw.).

21. *COLUMBA GUINEA*, Linn.

22. *DENDROCYGNA VIDUATA* (Linn.).

2. DESCRIPTIONS OF SEVERAL NEW SPECIES OF WORMS BELONGING TO THE ANNELIDA ERRANTIA AND SEDENTARIA OR TUBICOLA OF MILNE-EDWARDS. BY W. BAIRD, M.D., F.L.S.

The following very interesting species of Annelides were collected by Mr. Lord, during the time he was engaged as naturalist on the N.W. American Boundary Commission. They appear to me to be undescribed. They will be figured in the forthcoming report of the labours of the commission.

1. *LEPIDONOTUS INSIGNIS*, Baird.

This is a very fine species of the genus *Lepidonotus*. It is rather more than 3 inches long, and is nearly ½ an inch in breadth, exclusive of the setæ of the feet. On the upper surface, the body is of a whitish colour, marbled with black. The sides, which are covered by

the elytra, are white, and a broad black line runs down the centre of the dorsum throughout its whole length. The feet are encircled with fine black circular lines. The elytra, eighteen pairs in number, are oval, white, with black dots on the outer sides and centre, and they are marked with a black semicircular patch on the inner edge. They do not overlap each other, except near the head. On the body of the animal they are wide apart, leaving the centre of the back exposed. The under surface is of a bluish-black colour, with a narrow white line running down the centre. The proboscis is large and wrinkled, and the jaws are of a reddish-brown colour. The antennæ are five in number, the central one being nearly three times as long as the external pair, and of a pure white colour; the internal and external pairs white, ringed with black. The feet are very prominent, strong, rounded, conical, and armed with seven or eight stout brown bristles. The second branch is extremely small, and sends off two or three very small white setæ. The superior cirrus is tolerably long and sharp-pointed; it is pedunculated, the peduncle being stout, conical, and of a deep black colour. The inferior cirrus is short, conical, and sharp-pointed. The last segment of the body is terminated by two tolerably stout, but not long, cirri.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

2. LEPIDONOTUS LORDI, Baird.

This species is about 3 inches long, and rather more than one-third of an inch in diameter at the broadest part of the body. It tapers gradually from the head to the tail, which is only about $\frac{2}{16}$ ths of an inch broad. The colour is of a light brown, a broad line of a much darker brown running along the whole length of the centre of the back. On the under surface, a groove runs down the centre of the body throughout its whole length. The elytra are thirty-five pairs in number, thin, membranous, and of a light-brown colour. The two first overlap each other slightly in the middle; but, for the rest of its length, the centre of the back is uncovered. The antennæ are five in number, the central one short, of much the same length as the internal ones; the two external the longest, white, with a bright black ring round the upper part, but leaving the point white, which is acute at the apex. The feet are tolerably stout, and the two divisions are both furnished with sharp, but curved, pointed bristles. The superior cirri are white and of a moderate length; the inferior ones very short.

A good many specimens of this species were taken, and they were all found nestling under the shell, and occasionally coiling themselves under the foot, of the animal of *Fissurella cratitia*.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

3. LEPIDONOTUS GRUBEI, Baird.

This species is about 2 inches long, and $\frac{1}{2}$ an inch broad. The body underneath is of a uniform brown colour; above it is whitish, mottled with black. The elytra are eighteen pairs in number, nearly round, rough, with small tubercles, edged by a slightly raised margin,

and mottled with black and white. They do not meet each other in the centre, but leave a portion of the back uncovered. The superior cirri are rather long, blunt-pointed, pedunculated, marked with a black spot at the base, where they issue from the peduncle, and are ringed with black a little distance from the extremity. The inferior cirri are short and acute-pointed. The feet are broad, and the bristles of both branches are stout, of a bright brown colour, and toothed on one edge near the extremity. The antennæ are five in number, and are all short and nearly of equal length.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

4. LEPIDONOTUS FRAGILIS, Baird.

This species, owing to its brittle character, is in too bad a state to describe accurately. It is about $2\frac{1}{2}$ or 3 inches long, and is rather narrow. The scales or elytra appear to be very thin and membranous; but as they are deciduous, it is difficult to ascertain the number, especially as the worm is broken into several pieces. The superior cirri are stout and club-shaped at the tip. There appear to be no ventral cirri on the feet, and the superior cirri become nearly obsolete on the lower half of the body.

It was found by Mr. Lord adhering to a starfish; "but," he says, "it is next to impossible to obtain one perfect, as they break themselves to pieces on the slightest touch, or however carefully killed." In this respect it resembles a species of Annelide belonging to the group of vermiform Aphrodisians, described by Risso as occurring in the Mediterranean, under the name of *Eumolpe fragilis*.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

5. NEREIS FOLIATA, Baird.

This Nereid is of a dark grey colour above, and of a lighter hue underneath, somewhat iridescent. It is 15 inches in length, and at the broadest part is about $\frac{1}{2}$ an inch in breadth. It tapers gradually towards the tail, which terminates in two short, blunt, caudal styles. The first or occipital segment of the body is about twice the length of the second. The tentacular cirri are unequal, and vary in length: in the largest and best-developed specimen the longest are only about as long as the first two segments; while in another specimen, nearly of the same size, they are nearly equal in length to the first four segments, and in one or two small specimens, not a third the length of the two just mentioned, these cirri are equal in length to at least eleven of the first segments of the body. The shorter ones are only about half the length of the first segment of the body. The feet are well developed, the superior branchial appendages are large and in the form of a leaf, giving the animal at first sight the appearance of a species of *Phyllodon*. The antennæ are shorter than the palpi, which are strong and conical in shape.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

This species approaches very nearly to *Nereis virens* of Sars, from Newfoundland (*vide* Middendorf, *Sibirische Reise*, *Annulos.* 6, tab. i. figs. 2-6).

6. *NEREIS BICANALICULATA*, Baird.

This is rather a small species, about 2 inches long, and $2\frac{1}{2}$ lines in breadth. It is of a dull white colour, and is remarkable for having a channel running down both the dorsal and ventral sides. The channel on the dorsal surface is rather deep, commencing from the eleventh ring, and continues to the tail; the channel itself is quite smooth, the divisions or rings of the body not showing on its surface. On the ventral surface the channel shows marks of the divisions or rings into which the body is divided. The head is small, the antennæ about equal in length to the palpi, and the tentacular cirrhi are equal to about five or six rings of the body. The upper portion of the body is rounded, and not channeled; and the tail terminates in a round, blunt knob, without caudal filaments. The feet are rather small, but are rendered unusually distinct from the peculiar manner in which the rings or divisions of the body are interrupted by the channel running along the centre of the body. It tapers very gradually, and almost imperceptibly for some time, from the head to the tail.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

7. *GLYCERA CORRUGATA*, Baird.

This Annelide is about 4 inches in length, exclusive of the proboscis, which, when exserted, is $\frac{3}{4}$ ths of an inch long, and is about 3 lines in breadth; the proboscis is 4 lines at its greatest diameter. The head is rather short and conical, and strongly ringed. The antennæ are somewhat broad. The feet are broad, composed of two lobes, and are destitute of branchial filaments. The bristles are jointed, and the setæ straight and sharp. The segments of the body are very numerous, composed of a double ring, the one on which the feet are set being the narrower of the two and raised; while the whole surface of the body, especially on the upper side, is densely, though not very strongly, corrugated throughout its whole length. The proboscis is densely scabrous, and covered with very short dark-coloured bristles. The body tapers to a narrow point posteriorly, and terminates in a loosely connected short lobe, armed at the extremity with a slightly curved, horny, sharp-pointed claw.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

8. *SABELLARIA SAXICAVA*, Baird.

This Worm lives in the rock. The tube in which it lodges is solitary, and is evidently hollowed out of the solid (though not a very hard) rock by itself, and appears to be quite round.

The thoracic portion of the body is round; the abdominal flattened, with an impressed line running down through its whole length. The head is surmounted by an opercular disk composed of two rows of stout, dissimilar bristles (*paleæ*). The inner row consists of about ten stout, cylindrical, sharp-pointed bristles of a dark horn-colour, gradually increasing in size from the dorsal margin towards the ventral. The outer row consists of about eighteen bristles, not so stout, flattened, and finely denticulated on both sides for about half the

length. The postoccipital segment of the body is long, of a dark colour, somewhat wrinkled, and marked with three or four fleshy tubercles, on each side. The thoracic feet are three pairs, and are broad, but short. As only one specimen was found, it was thought inadvisable to dissect the whole worm out; in consequence of which the extremity has not been seen. I am unable to say whether it terminates in a caudal appendage or not.

The length of the exposed portion of the worm is $1\frac{1}{2}$ inch, the breadth about 2 lines. Probably the part enclosed in the tube may be of about equal length.

Hab. Esquimalt Harbour, Vancouver Island (*Mus. Brit.*).

3. ON THE GENERA AND SPECIES OF FOSSARIDÆ FOUND IN JAPAN. BY ARTHUR ADAMS, F.L.S., ETC.

Of all the different forms peculiar to this little group, the animal of *Fossar* only has been examined. It is distinguished from that of *Littorina* and *Trichotropis* by the possession of two frontal intertentacular lobes. In this respect it resembles that of the Trochidæ; but the sides of the foot and the operculigerous lobe are simple. In the 'Annals' for 1860 I suggested therefore the creation of a family Fossaridæ to include the genera *Fossar* and *Isapis*, to which I added *Conradia* and *Couthouyia*, two new forms from the Sea of Japan. I now add descriptions of *Cithna* and *Gottoina*, also new types from the shores of the same archipelago. The species of *Fossar* which I named *F. japonicus* I find identical with *F. costatus*, Brocc., which inhabits the Mediterranean.

Genus 1. FOSSAR, Adanson.

1. FOSSAR COSTATUS, Brocc.

Nerita costata, Brocc. p. 300, t. 11. f. 11.

Delphinula costata, Bron.

Purpura costata, Sow.

Sigaretus costatus, Serres.

Fossarus tornatilis, Gould, Otia, p. 110.

Fossar japonicus, A. Ad. Annals, 1861.

Hab. Seto-Uchi; Kuro-Sima; Tsu-Sima.

2. FOSSAR TROCHLEARIS, A. Ad. Proc. Zool. Soc. 1853, p. 187.

Hab. O-Sima.

3. FOSSAR FENESTRATUS, A. Ad.

F. testa neritoidea, solida, alba, anguste umbilicata, spira obtusa, anfractu ultimo permagno, anfractibus cingulis quatuor elevatis transversis et costis longitudinalibus validis late clathratis; apertura semiovata; labio recto; labro margine valde crenato.

Hab. O-Sima.

A solid Neritoid species, with the spire obtuse, and the whorls very coarsely clathrate.

Subgenus COUTHOUYIA, A. Ad.

1. COUTHOUYIA DECUSSATA, A. Ad. Annals, 1860.

Hab. Mino-Sima.

2. COUTHOUYIA RETICULATA, A. Ad.

Fossar reticulatus, A. Ad. Proc. Zool. Soc. 1853, p. 186.

Hab. Seto-Uchi; Uraga.

3. COUTHOUYIA STRIATULA, A. Ad.

C. testa ovata, rimata, fusca, spira acuminata; anfractibus 4½, convexis, transversim striatis, lineis incrementi obsoletim impressis, suturis profundis, apertura elongato-ovali; labio tenui, arcuato; labro margine integro, rima umbilicali angusta, elongata, semilunari.

Hab. Yobuko, 25 fathoms.

This is a thin, transversely striated species, with a linear rimal fissure, and with the spire much produced.

4. COUTHOUYIA PLICIFERA, A. Ad.

C. testa ovata, tenui, rimata, fusca, spira acuminata; anfractibus 4½, convexis, transversim tenuiter striatis, longitudinaliter plicatis, plicis obliquis, tenuibus, subdistantibus, suturis canaliculatis; apertura ovata; labio arcuato; labro margine integro; rima umbilicali angusta, lunata.

Hab. Yobuko.

This is a small species, with plicate whorls and canaliculated suture; it is finely striated transversely, and is very thin, like most shells obtained at any considerable depth.

Genus 2. ISAPIS, H. & A. Adams.

1. ISAPIS LIRATA, A. Ad. Annals, 1860.

Hab. Mino-Sima.

2. ISAPIS CONOIDEA, A. Ad.

I. testa ovato-conoidea, alba, solida, rimata, spira acuta, elatiuscula; anfractibus quatuor, planatis, transversim valde liratis, liris subdistantibus, æqualibus, interstitiis longitudinaliter concinne clathratis; apertura ovata; labio incrassato, superne dente acuto transverso instructo; labro margine acuto, integro.

Hab. Takano-Sima, in shell-sand.

The form is conoidal, the tooth is at the upper part of the inner lip, and the outer lip is not crenate. In other respects it somewhat resembles *I. ovoidea*, Gould.

Genus 3. CONRADIA, A. Ad.

1. CONRADIA CINGULIFERA, A. Ad. Annals, 1860.

Hab. Mino-Sima; Uraga.

2. *CONRADIA CARINIFERA*, A. Ad. Annals, 1860.*Hab.* Mino-Sima; Gotto.3. *CONRADIA CLATHRATA*, A. Ad. Annals, 1860.*Hab.* Mino-Sima.4. *CONRADIA PULCHELLA*, A. Ad. Annals, 1861.*Hab.* Tsu-Sima, 16 fathoms; Gotto, 48 fathoms.5. *CONRADIA DOLIARIS*, A. Ad.

C. testa turbinata, sordide alba, profunde umbilicata; anfractibus $4\frac{1}{2}$, *convexiusculis, transversim valde liratis (liris in anfractu ultimo 7, æquidistantibus), interstitiis concinne cancellatis, suturis canaliculatis; apertura orbiculari; labio tenui, arcuato; labro margine fimbriato; rima umbilicali angusta, lunata.*

Hab. Seto-Uchi (Mososeki, 7 fathoms).

This is a very pretty species, with distant transverse ridges, and the interstices neatly cancellated. The shell is very thin, the aperture is nearly circular, and the sutures are deeply channeled.

6. *CONRADIA TORNATA*, A. Ad.

C. testa turbinata, alba, solida, anguste umbilicata; anfractibus $3\frac{1}{2}$, *convexis, transversim valde liratis, liris in anfractu ultimo 5, distantibus, interstitiis longitudinaliter valde striatis; suturis mediocribus; apertura circulari; labio incrassato, antice subdilato, arcuato; labro margine fimbriato.*

Hab. Gotto, 48 fathoms.

A small, solid, neatly sculptured species, with a narrow umbilicus, and the interstices between the strong transverse ridges very coarsely striate.

Subgenus *GOTTOINA*, A. Ad.

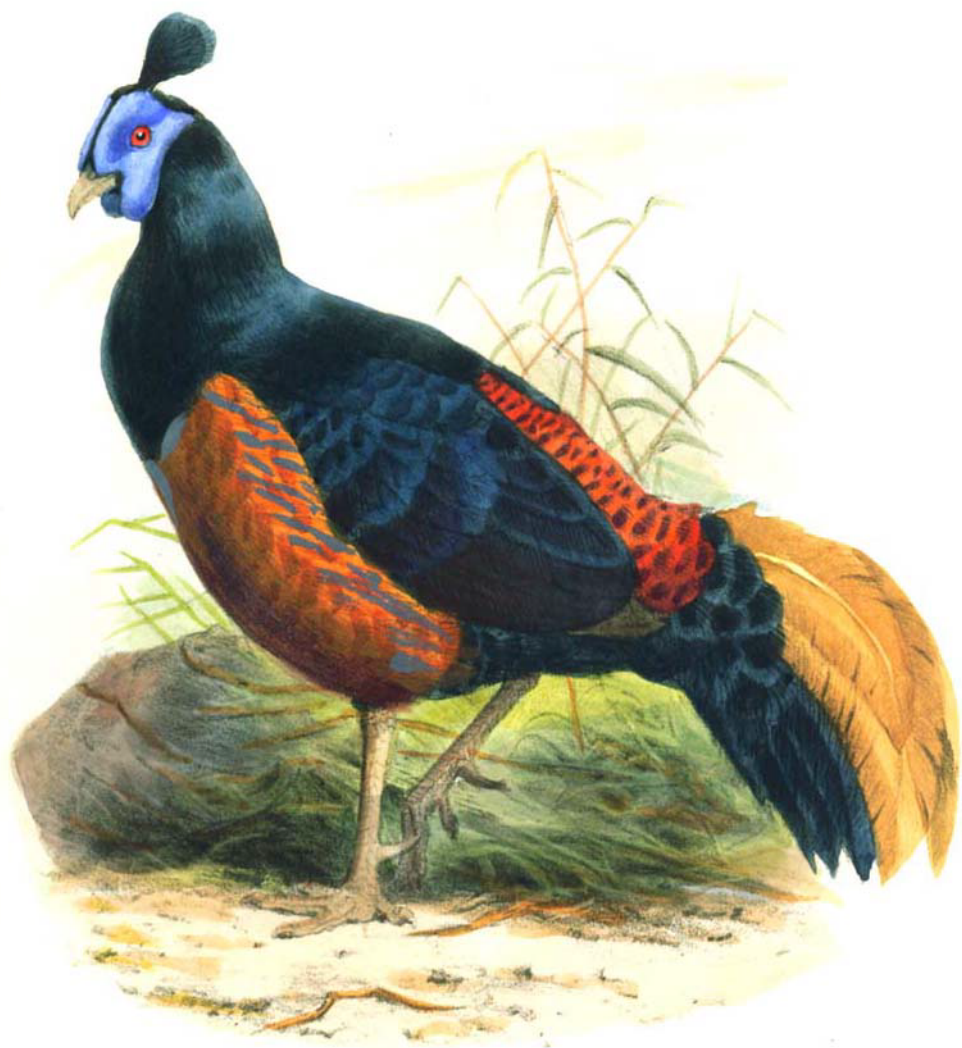
Testa turbinoidea seu trochiformis, imperforata; anfractibus transversim liratis. Apertura ovata; labio simplici, arcuato.

This form differs from *Fossar* in the absence of the peculiar deep rimal fissure, and in the inner lip being arcuate instead of straight; from *Conradia* and *Couthouyia* in being solid and imperforate; and from *Isapis* in the inner lip not being furnished with a tooth.

1. *GOTTOINA SULCIFERA*, A. Ad.

G. testa depresso-turbinata, albida, solida, rimata, spira obtusa; anfractibus $3\frac{1}{2}$, *convexis, liris transversis validis æqualibus, interstitiis longitudinaliter concinne striatis, ornatis; apertura ovata; labio subincrassato, arcuato; labro margine crenulato.*

Hab. Gotto, 48 fathoms.



J. Wolf del. et lith.

M. & N. Hanhart Imp

LOPHOCAMUS NOBILIS.

2. GOTTOINA PYRGULA, A. Ad.

G. testa trochoidea, albida, solida, imperforata, spira elata; anfractibus 4½, subplanatis, liris validis, transversis, subnodulosis, et lineis elevatis, longitudinalibus, late cancellatis, lineis in anfractu ultimo inferne obsoletis; apertura ovata; labio tenui, arcuato; labro margine crenato.

Hab. Gotto, 48 fathoms.

Subgenus CITHNA, A. Ad.

Testa globoso-turbinata, tenui; anfractibus lævibus. Apertura viz circularis; labio tenui, arcuato; labri margine simplice; umbilico carina semilunari extus instructo.

This form resembles *Conradia*, without any ridges or keels on the whorls. The umbilicus is exactly similar to that of *Omphalotropis*, Pfr.

1. CITHNA GLOBOSA, A. Ad.

C. testa globoso-turbinata, alba, tenui, profunde umbilicata, lineis incrementi ornata; anfractibus 4, convexis, suturis profundis; apertura orbiculari; labio arcuato, acuto; labri margine simplici; umbilico extus valde carinato.

Hab. Seto-Uchi; Harima Nada.

2. CITHNA SPIRATA, A. Ad.

C. testa turbinata, tenui, albida, late et profunde umbilicata, spira elata; anfractibus 4, planatis, superne angulatis, ultimo ad peripheriam carinula transversa instructo; apertura ovata; labio tenui, arcuato; labro simplici, acuto; umbilico carina conspicua circumcincto.

Hab. Seto-Uchi; Idsuma Nada.

4. LIST OF THE SPECIES OF PHASIANIDÆ, WITH REMARKS ON THEIR GEOGRAPHICAL DISTRIBUTION. BY P. L. SCLATER, M.A., PH.D., F.R.S., SECRETARY TO THE SOCIETY.

(Plate XVI.)

There is little doubt that all the species of the family *Phasianidæ* might be introduced into this country, and bred in our aviaries. Whether, as the more sanguine advocates of acclimatization maintain, it would be possible to add them to our game-preserves, and whether this, if carried out, would be of material advantage to the sportsman, I will not now stop to inquire. It is sufficient to say that increased interest has been lately manifested in many quarters in the acquisition of living examples of these splendid birds, and that I have received numerous offers of assistance from correspondents in various

parts of the world, who are desirous of knowing what Pheasants the Society already possesses, and what would be the most desirable additions that could be made to the present stock in the Gardens. Under these circumstances I have drawn up the subjoined list of all the species of the family *Phasianidæ*, as far as they are known to me, adding some remarks on the general history of the species, and notes on their exact geographical distribution, as far as that can be ascertained.

The family *Phasianidæ* is one of the most typical of the circumscribed order *Gallinæ*, which, according to the arrangement usually followed, is conveniently placed between the *Columbæ*, on the one hand, and the Struthious birds on the other. It consists, according to my ideas, of six natural and tolerably well-defined families, —namely (1) the *Pteroclidæ*, or Sand-Grouse, which may be placed first, as showing certain Columbine affinities* ; (2) the *Tetraonidæ*, embracing the true Grouse, Partridges, Odontophores, and Quails ; (3) the *Phasianidæ*, containing the Pheasants, Peacocks, Turkeys, and Guinea-fowl ; (4) the *Cracidæ*, or Curassows of the New World, to which the genus *Meleagris* leads off, and possibly ought to be referred ; (5) the *Megapodidæ*, or Megapodes ; and (6) last, the *Tinamidæ*†, or Tinamous, by which the passage is effected to the Struthionæ. The geographical distribution of these families is shown by the following table :—

Regio Neotropica.	Regio Nearctica.	Regio Palæarctica.	Regio Æthiopica.	Regio Indica.	Regio Australiana.
.....	.....	Pteroclidæ.	Pteroclidæ.	Pteroclidæ.	.....
Tetraonidæ.	Tetraonidæ.	Tetraonidæ.	Tetraonidæ.	Tetraonidæ.	Tetraonidæ.
.....	Phasianidæ. (<i>Meleagris</i> .)	Phasianidæ.	Phasianidæ. (<i>Numidina</i> .)	Phasianidæ.	.....
Cracidæ.	.....			
.....	.....		.....	Megapodidæ.	Megapodidæ.
Tinamidæ.	.....			

By this it will be seen that the true *Phasianidæ* are only represented in the New World by the genus *Meleagris*, and in Africa by three small genera of the *Numidina*. It is in the Indian region where these Gallinaceous birds have attained their great development, most of the large and splendid forms of the group being confined to this region, though certain outliers have been thrown out from it into the adjoining parts of the Palæarctic Region.

The *Phasianidæ* may be conveniently divided in the following way :—

* See Mr. Newton's remarks, P. Z. S. 1861, p. 203.

† In spite of what Mr. Parker has stated before this Society, as to the undoubted affinities of the Tinamous (see P. Z. S. 1862, p. 259), I cannot yet make up my mind to arrange this group with the Struthionæ, and therefore leave them for the present at the end of the Gallinaceous group.

I. Phasianinæ ... (35 species.)	1. Lophophorus	N. India.
	2. Pucrasia	N. India.
	3. Phasianus ...	Eastern Europe, Central Asia, China, Japan, and N. India.
	4. Thaumalea ..	Central Asia.
	5. Crossoptilon	Central and Eastern Asia.
	6. Euplocamus	N. India, Burmese Countries, China, Sumatra, and Borneo.
II. Pavoninæ ... (8 species.)	7. Gallus	India, Burmese Countries, Sumatra, Java, and islands beyond, up to Timor.
	8. Ceriornis ...	N. India and China.
	1. Pavo	India, Burmese Countries, and Java.
	2. Polyplectron	N. India, Burmese Countries, and Sumatra.
III. Meleagrinæ.... (3 species.)	3. Argus.....	Malacca, Sumatra, and Borneo.
	1. Meleagris ...	North-eastern and Central America.
IV. Numidinæ .. (10 species.)	1. Numida.....	Africa.
	2. Phasidus ...	W. Africa.
	3. Agelastus ...	W. Africa.

In the following catalogue of species I have inserted those only which I believe are unquestionably good. There are examples of nearly all of these in the splendid collection of the British Museum*; and I may state that I have seen specimens of all the fifty-six species enumerated below, except *Numida pucherani*. I have to thank Mr. Wallace, Mr. Swinhoe, and Mr. Blyth for communicating to me various particulars concerning the range of the different species.

Subfam. I. PHASIANINÆ.

Range.—Palæarctic and Indian Regions; straggling into the confines of the Australian Region.

Genus 1. LOPHOPHORUS.

Range.—Southern slopes of the Himalayas.

1. LOPHOPHORUS IMPEYANUS. (Impeyan Pheasant.)

Phasianus impeyanus, Latham, Ind. Orn.

Lophophorus impeyanus, Gould, B. Asia, pt. 2.

Hab. Southern slopes of Himalayas; probably throughout the whole range, but certainly from Simla to Darjeeling. Cashmere, at high elevations; nowhere abundant, but pretty generally distributed (*A. L. Adams*).

Genus 2. PUCRASIA.

Range.—Southern slopes of the Himalayas.

1. PUCRASIA MACROLOPHA. (Pucras Pheasant.)

Satyra macrolopha, Less. Dict. Sc. N. lix. p. 196.

Pucrasia macrolopha, Gray, Gen. B. iii. p. 563; Gould, B. Asia, pt. 6.

Hab. N.W. Himalayas, common on the ranges near Simla eastward (above 5000 feet elevation, *Dr. A. L. Adams*). Procured by Mr. Hodgson in Nepal.

* The desiderata of the British Museum appear to be only *Euplocamus melanotus*, *E. swinhoii*, *Numida tiarata*, and *N. pucherani*.

2. PUCRASIA CASTANEA. (Western Pucras.)

Pucrasia castanea, Gould, P. Z. S. 1854, p. 99 ; B. Asia, pt. 6.

Hab. Kafiristan (*Griffith*).

3. PUCRASIA NIPALENSIS. (Nepalese Pucras.)

Pucrasia nipalensis, Gould, P. Z. S. 1854, p. 100 ; B. Asia, pt. 6.

Hab. Bhotan.

Genus 3. PHASIANUS, Linn.

Range.—Palæarctic Region, from Europe to Japan, and one aberrant species on southern slopes of the Himalayas.

Sect. A. *Phasianus*.

1. PHASIANUS COLCHICUS. (Common Pheasant.)

Phasianus colchicus, Linn.

Hab. Shores of the Caspian, where diffused over Western Asia and Europe.

2. PHASIANUS TORQUATUS. (Chinese Pheasant.)

Phasianus torquatus, Gm. S. N. i. p. 742 ; Gould, Birds of Asia, pt. 7. pl. 1.

Hab. Eastern Asia, from Transbaikalia, through Amoorland, into Southern China (*Schrenck*, Amur-Reise, i. p. 404).

Very common in the flat cotton-country round Shanghai ; and a hill-bird in Southern China, where less common. Believed to have been seen in captivity near Pekin ; but not met with there in a wild state (*Swinhoe*).

The Formosan bird varies a little in plumage from Chinese specimens as noted by Mr. Swinhoe (*Ibis*, 1863, pt. 4).

3. PHASIANUS MONGOLICUS. (Mongolian Pheasant.)

Phasianus mongolicus, Brandt : Gould, B. Asia, pt. 10. pl. 1.

Hab. Altai and Tarbagatai Mountains, and probably the adjoining parts of Mongolia.

Herr v. Schrenck has shown (*Amur-Reise*, p. 403) that Prof. Brandt was in error in considering this bird as the *P. colchicus*, var. *mongolica*, of Pallas,—Pallas's bird being doubtless the *Phasianus torquatus*, which is the only species met with in Amoorland. The *P. mongolica* of Brandt appears to be a more western species, from the Altai and Tarbagatai Mountains. Mr. Gould speaks of an example killed near Semipalatinsk, which is on the Irtisch, in 80° E. lon. The interposition of this distinct species between the closely allied *P. colchicus* and *P. torquatus* is very singular.

4. PHASIANUS VERSICOLOR. (Japanese Pheasant.)

Phasianus versicolor, Vieill. : Gould, B. Asia, pt. 9. pl. 1 ; Temm. Pl. Col. 486, 493.

Hab. Japan, Nippon (*Heine*, in Perry's Japan Exp. Zool. ii. p. 224) : doubtful if extending into Jesso (*Blakiston*, *Ibis*, 1862, p. 329).

5. PHASIANUS SÆMMERINGII. (Sæmmering's Pheasant.)

Phasianus sæmmeringii, Temm. Pl. Col. 487.*Hab.* Japan, vicinity of Simoda, island of Nippon (*Heine, l. c.*).Sect. B. *Syrmaticus*, Wagler.

6. PHASIANUS REEVESII. (Barred-tailed Pheasant.)

Phasianus reevesii, J. E. Gray, Ind. Zool. i. pl. 39.*Phasianus veneratus*, Temm. Pl. Col. 485.*Phasianus superbus*, Jard. Nat. Libr. xiv. p. 202.*Hab.* Northern China: vicinity of Pekin (*Lamprey*).Stated by the Chinese to be found also in the Taihoo district, Central China, on the north side of the Yang-tsze-kiang (*Swinhoe*).Sect. C. *Catreus*, Cab.

7. PHASIANUS WALLICHII. (Wallich's Pheasant, or The Cheer.)

Phasianus wallichii, Hardw. Linn. Trans. xv. p. .*Phasianus staceii*, Gould, Cent. pl. 68.*Hab.* North-western Himalayas, lower and intermediate ranges (*Dr. A. L. Adams*).

The Cheer was introduced into Europe by the Society in 1857, along with the three species of Kaleeges, but has not made such good progress—not breeding so freely as the latter birds.

Genus 4. THAUMALEA, Wagl.

Range.—High plateau of interior of Asia.

1. THAUMALEA PICTA. (Golden Pheasant.)

Phasianus pictus, Linn. S. N. i. p. 272.*Hab.* Southern Daüria and the eastern part of the Desert of Mongolia, in summer advancing sometimes up to the Amoor (*Pallas, Zoogr. ii. p. 86; Schrenck, Amur-Reise, i. p. 521*). Interior of China, provinces of Kansú and Sechuen, whence brought into Canton, living, for sale (*Swinhoe*).

2. THAUMALEA AMHERSTIÆ. (Lady Amherst's Pheasant.)

Phasianus amherstiae, Leadb. Linn. Trans. xvi. p. 129; Gray & Mitch. Gen. B. pl. 125.*Hab.* Probably the Chinese province of Yunnan and adjoining region of Tibet.The original examples of this splendid bird were "presented by the King of Ava to Sir Archibald Campbell, who gave them to the Countess Amherst. Her ladyship retained them in her possession about two years, and ultimately succeeded in bringing both of them to England alive; but they only survived the voyage a few weeks" (*Leadbeater, in Linn. Trans. xvi. p. 129*).

Mr. Hodgson obtained skins of this bird whilst in Nepal, as noticed by Blyth (Cat. of As. Soc.'s Mus. p. 246), who gives as

locality the "bordering regions of China and Tibet." Other examples obtained by Mr. Hodgson are in the British Museum.

Genus 5. CROSSOPTILON, Hodgs.

Range.—Tibet, interior of China, and Tartary.

1. CROSSOPTILON TIBETANUM. (Tibetan Eared-Pheasant.)

Crossoptilon tibetanum, Hodgs. Journ. As. Soc. Beng. vii. p. 864.

Hab. Eastern Tibet: only one specimen known, obtained by Mr. Hodgson, and now in the British Museum.

2. CROSSOPTILON AURITUM. (Pallas's Eared-Pheasant.)

Phasianus auritus, Pallas, Zoogr. R. A. ii. p. 86.

Crossoptilon auritum sive *mantchuricum*, Swinhoe, P. Z. S. 1862, p. 286.

Hab. Manchuria, north of Pekin: obtained by Dr. Lamprey at Pekin (see P. Z. S. 1862, p. 221).

Genus 6. EUPLOCAMUS.

Range.—Southern slopes of the Himalayas, and eastwards through Burmese countries to Southern China and Formosa; Sumatra and Borneo, but not Java.

Sect. A. *Diardigallus*.

1. EUPLOCAMUS PRÆLATUS. (Siamese Pheasant.)

Diardigallus prælatus, Bp. Compt. Rend. xliii. p. 415 (1856); Gould, B. Asia, pt. xii.

Gallus diardi, Temm. in Mus. Lugd.; Schlegel, Handl. t. d. Dierk. i. p. 379.

Diardigallus fasciolatus, Blyth, J. A. S. B. xxvii. p. 280.

Euplocamus crawfurdi, in Mus. Brit.

Diardigallus crawfurdi, Schomb. P. Z. S. 1862, p. 250.

Hab. Siam; Shan States, to the east of Kieng-Mai (*Schomburgk*).
Mus. Brit.

Sect. B. *Euplocamus*.

2. EUPLOCAMUS VIEILLOTI. (Vieillot's Fire-back.)

Gallus ignitus, Vieill. Gal. pl. 207 (♂).

Phasianus ignitus, Raffles, Linn. Trans. xiii. p. 320.

Euplocamus ignitus, J. E. Gray, Ind. Zool. ii. pl. 39 (♀).

Gallophasis vieilloti, G. R. Gray, Gen. B. iii. p. 498; Sclater & Wolf, Zool. Sketches, ser. 2. pt. 1. pl. 6 (ex ave vivâ).

♂. *Niger, purpureo splendens: dorso imo ignescenti-castaneo: lateribus albo notatis: rectricibus quatuor mediis fulvescenti-albis.*

♀. *Brunnea, plumis corporis subtus albo marginatis.*

Hab. Province of Mergui, Tenasserim, and southwards throughout Malayan peninsula, Sumatra.

Easily distinguished from the two following species by its white side-stripes. Specimens of both sexes were obtained at Malacca by Mr. Wallace.

3. EUPLOCAMUS IGNITUS. (Latham's Fire-back.)

Phasianus ignitus, Lath. Ind. Orn. Suppl. p. lxi.

Gallus macartneyi, Temm. Fig. & Gall. iii. p. 663.

♂. *Niger, purpureo splendens: dorso imo igneo-ferrugineo: lateribus pallide castaneis, nigro variis: rectr. 4 mediis albis.*

♀. *Brunnea, subtus plumis albo variegatis.*

Hab. Probably Sumatra.

There are specimens of this bird in the Leyden Museum and in the British Museum; but in neither case is the exact locality known. Macartney's original specimen was procured at Batavia; but Mr. Wallace tells me there is certainly no form of this family, except *Gallus* and *Pavo*, in Java. In this species the flanks are pale chestnut, varied with purplish black; the middle of the belly is black, and the four intermedial rectrices are nearly white, as in *E. vieilloti*.

4. EUPLOCAMUS NOBILIS, n. s. (Bornean Fire-back.) (Pl. XVI.)

Euplocamus ignitus ex Borneo auct.

♂. *Niger, purpureo splendens: dorso postico et lateribus cum ventre toto saturate castaneis: rectricibus quatuor mediis et proximæ utriusque pogonio interno cervinis.*

♀. *Brunnea, subtus albo variegata.*

Hab. Borneo.

There are two specimens of this bird in the British Museum from Borneo; and in the Leyden collection is an example from the same locality. The species closely resembles the true *E. ignitus*, but is readily distinguished by its fawn-coloured medial rectrices and wholly chestnut belly. One example in Mr. Wallace's collection was obtained at Sarawak.

5. EUPLOCAMUS SWINHOOI. (Swinhoe's Pheasant.)

Euplocamus swinhooi, Gould, P. Z. S. 1862, p. 284.

♂. *Niger, metallice purpurascens: crista media et dorso summo niveis: scapularibus badiis: rectricibus duabus intermediis albis, ceteris nigris: alis extus æneis: cera et pedibus rubris.*

♀. *Brunnea, nigro vermiculata: ventre puriore: alis nigris, brunneo fasciatis.*

Hab. Formosa (Swinhoe).

Sect. C. *Acomus*, Reichenb.

6. EUPLOCAMUS ERYTHROPHTHALMUS. (Rufous-tailed Pheasant.)

Phasianus erythrophthalmus, Raffl. Trans. Linn. Soc. xiii. p. 321.

Gallophasis erythrophthalmus, Gray, Gen. B. iii. p. 498.

Phasianus purpureus, Gray, Ind. Zool. i. pl. 42 (♀).

♂. *Niger, alis griseo undulatis : dorso imo igneo : cauda fulva : oculorum ambitu nudo rubro.*

♀. *Purpureo-niger, unicolor.*

Hab. Sumatra (*Raffles*); common in collections from Malacca.

I am inclined to believe that *Raffles* is right in his description of the female of this bird—that sex having been considered by some authors as a distinct species, and named in Gray's 'Indian Zoology' *Phasianus purpureus*. A male example of this species was obtained at Malacca by Mr. Wallace.

7. EUPLOCAMUS PYRONOTUS (Bornean Rufous-tailed Pheasant.)

Euplocamus erythrophthalmus, J. E. Gray, Ind. Zool. ii. pl. 39. fig. 1.

Alectrophasis pyronota, G. R. Gray, List of Gallinæ, p. 26.

Euplocamus personatus, Temm. in Mus. Lugdun.

♂. *Niger : dorso imo igneo : cauda fulva : corpore subtus albo longitudinaliter lineato.*

♀. *Purpureo-niger, unicolor.*

Hab. Borneo (*Mus. Brit.*).

Easily distinguished from *E. erythrophthalmus* by the white medial shaft-lines of the plumage below. The female specimen in the British Museum appears very like the female of the preceding species. Two examples, males, one of which was obtained near Sarawak, are in Mr. Wallace's collection. The naked space round the eye is marked red.

Sect. D. *Gennæus*, Wagler.

8. EUPLOCAMUS NYCTHEMERUS. (Silver Pheasant.)

Phasianus nycthemerus, Linn. S. N. i. p. 272.

Gennæus nycthemerus, Gould, B. Asia, pt. xi.

Nycthemerus argentatus, Sw. Class. ii. p. 34.

Hab. Southern China. "Has been shot in the vicinity of Amoy; inhabits the wooded hills of the interior of Southern China" (*Swinhoe*).

Sect. E. *Gallophasis*.

9. EUPLOCAMUS LINEATUS. (Lineated Pheasant.)

Lineated Pheasant, Latham, G. H. viii. p. 221.

Phasianus lineatus, Vigors, P. Z. S. 1831, p. 24.

Phasianus reynaudi, Lesson, in Belanger's Voy. Zool. pls. 8, 9.

Phasianus fasciatus, McClelland, Calcutta Journ. vol. ii. p. 146.

Hab. Tenasserim and Pegu, replacing the following species, *E. horsfieldi*, which is connected with the present by a series of intermediate forms found in Arracan. (See Blyth, Cat. Mus. A. S. B. p. 244.)

N.B. Temminck's *Lophophorus cuvieri* seems to have been established upon one of these intermediate forms. (See Blyth, l. c.)

10. *EUPLOCAMUS HORSFIELDI*. (Horsfield's Kaleege.)*Gallophasis horsfieldi*, G. R. Gray, Gen. B. iii. pl. 126.*Hab.* Assam and Sylhet.

This and the two following species were introduced by the Society in 1857, and are bred every year in the Gardens. Full details respecting them have been given from time to time in the 'Proceedings' and 'Annual Reports' of the Society. (See P. Z. S. 1858, p. 554, and 1860, p. 444.)

11. *EUPLOCAMUS MELANOTUS*. (Black-backed Kaleege.)*Euplocamus melanotus*, Blyth, J. A. S. B. xvii. p. 694; Cat. Mus. A. S. B. p. 244.*Hab.* Sikhim and probably Bhotan.12. *EUPLOCAMUS ALBOCRISTATUS*. (White-crested Kaleege.)*Phasianus albocristatus*, Vig. P. Z. S. 1832, p. 16; Gould, Cent. pl. 66.

Hab. Western Himalayas: "rare on the Cashmere ranges; more plentiful on those near the Punjab" (*Dr. A. L. Adams*, P. Z. S. 1859, p. 186).

Capt. Thomas Hutton observes with reference to this species, in his 'Notes on the Nidification of Indian Birds' (J. A. S. B. xvii. pt. 2. p. 694):—

"In Mr. Gray's catalogue of the collection presented to the British Museum by Mr. Hodgson, this and *Phasianus hamiltonii* are given as synonyms of *Gallophasis leucomelanos*. In this there appears to be some degree of error, for the species are distinct. Mr. Blyth, in *epistola*, writes that 'there are' four true races and two hybrids. Of the former, one is *E. albo-cristatus*, crest rarely very white, the white on the rump always well developed; and found *exclusively* westward of Nepal. *E. melanotus*, Blyth, which has a black crest, and no white on the rump, is common at Darjeeling: and the Nepalese *E. leucomelanos* is certainly a cross between these two. *E. cuvieri* of Assam, Sylhet, &c., has white on the rump, but the under parts wholly shining black; and this has produced a mixed race with *E. lineatus* in Arracan.

"If such be the case, the name of *leucomelanos*, belonging only to a hybrid, and not to a true species, must give place to Gould's name of *albocristatus*. *Phasianus hamiltonii* of Gray's 'Ill. Ind. Zool.' looks very like an immature male of the present species, but, being from Nipal, is probably an immature hybrid. In the neighbourhood of Mussooree and Simla we have only *Euplocamus* (*Gallophasis*) *albocristatus* (*verus*),—the others all occurring more to the eastward, as correctly observed by Mr. Blyth. The long white crest is seldom, or perhaps never, found except in fully mature birds, it being generally of a dirty or dusky hue, like that figured in Gould's 'Century.' Every place, however, is now so thoroughly poached over by native shikarrees that an old white-crested bird is extremely rare."

Genus 7. GALLUS.

Range.—India, Ceylon, and throughout Burmese countries into Sumatra, Java, and islands beyond, as far as Timor : Philippines(?).

1. GALLUS BANKIVA. (Bankiva Jungle-fowl.)

Gallus bankiva, Temm. II. N. Pig. & Gall. ii. p. 87.

Gallus ferrugineus, Blyth, Cat. p. 242.

Hab. Java, Sumatra, Malacca, Burmese countries : Assam ; and jungly districts of all Northern India, from valleys of the Subhimalayan region southward to the Vindhya range and N. Circars (*Blyth*). Philippines (*Crawford*). All the islands between Java and Timor inclusive, and also Southern Celebes (*Wallace*).

2. GALLUS STANLEYII. (Ceylonese Jungle-fowl.)

Gallus lafayettii, Less.

Gallus stanleyii, J. E. Gray, Ind. Zool.

Hab. Ceylon.

3. GALLUS SONNERATII. (Sonnerat's Jungle-fowl.)

Gallus sonneratii, Temm. Pl. Col. 232, 233.

Hab. Peninsula of India.

"Tolerably abundant in most of the lofty jungles of Southern India ; also found in the lower jungles in the Carnatic and eastern range of Ghauts" (*Jerdon*). Very rare and local in the Vindhya range, and not found further north of it. Royle is wrong in stating that it is found in the North-western Himalayas (*Blyth*).

4. GALLUS VARIUS. (Fork-tailed Jungle-fowl.)

Phasianus varius, Shaw, Nat. Misc. pl. 9.

Gallus javanicus, Horsf. Linn. Trans. xiii. p. 185.

Gallus furcatus, Temm. Pl. Col. 433.

Hab. Java : Lombock, Sumbawa, and Flores.

Mr. Wallace has examples of this bird from Java and Flores which show little variation. He saw it in Lombock, and heard of its being more abundant in Sumbawa.

Genus 8. CERIORNIS.

Range.—Southern slopes of Himalayas into Southern China.

1. CERIORNIS SATYRA. (Horned Tragopan.)

Meleagris satyra, Linn. S. N. i. p. 269.

Tragopan satyrus, Gould, Cent. pl. 62.

Cerionis satyra, Blyth, Cat. p. 240.

Hab. South-eastern Himalayas, Nepal, Sikim : Bhotan.

2. CERIORNIS MELANOCEPHALA. (Black-headed Tragopan.)

Satyra melanocephala, Gray in Griff. An. K. iii. p. 29.

Tragopan hartingsi, Vig. P. Z. S. 1832, p. 8 ; Gould, Cent. pls. 63, 64, 65.

Ceriornis melanocephala, Gray, Gen. B. iii. p. 499; Gould, B. Asia, pt. 7. pl. 9.

Hab. Slopes of North-western Himalayas: higher ranges north-west of Simla, and Southern Pinjal forests of Cashmere (*Dr. A. L. Adams*).

3. *CERIORNIS TEMMINCKII*. (Temminck's Tragopan.)

Satyra temminckii, J. E. Gray, Ill. Ind. Zool. i. pl. 50.

Hab. China: exact locality unknown.

Obtained by Mr. Reeves from Beale's Menagerie, and brought alive to this country.

4. *CERIORNIS CABOTI*. (Cabot's Tragopan.)

Ceriornis caboti, Gould, P. Z. S. 1857, p. 171; B. Asia, pt.

Hab. China (?).

Described from a single specimen in Dr. Cabot's collection, said to have been obtained at Macao.

Subfam. II. PAVONINÆ.

Range.—Indian region except China, Java, and Philippines.

Genus I. *PAVO*, Linn.

Distribution.—Peninsula of India, Burmese countries, and Java.

1. *PAVO CRISTATUS*. (Common Pea-fowl.)

Pavo cristatus, Linn. S. N. i. p. 267.

Hab. Indian peninsula, Himalayas (up to 4000 feet), and Ceylon; jungles among the salt-range of the Punjab (*Dr. A. L. Adams*).

At one time I supposed that the Ceylonese species of Peacock might be the next (*Pavo nigripennis*); but Sir J. Emerson Tennant having kindly procured me a skin from Ceylon for comparison, I find it to be the same as the Indian *Pavo cristatus*.

2. *PAVO NIGRIPENNIS*. (Black-winged Pea-fowl.)

Pavo nigripennis, Sclater, P. Z. S. 1859, p. 221.

I am still at a loss to know what was the original sedes of this Peacock, which I cannot regard otherwise than as a very distinct species. Raffles (Linn. Trans. xiii. p. 319) says the "Common Peacock is a native of the Malay peninsula and Java;" and in the Appendix to his Memoir, *Pavo cristatus* is given as being found in Sumatra. Can the present bird be the Malayan form of the common species?

3. *PAVO MUTICUS*. (Javan Pea-fowl.)

Pavo javanicus, Horsf. Linn. Trans. xiii. p. 185.

Hab. Burmese and Malay countries, ranging northwards to Arracan; Java (*Horsf.*); Sumatra (*Vigors* in Raffles's Mem. p. 676).

Obtained in Eastern Java by Mr. Wallace, and said to be abundant all over the island.

Genus 2. POLYPLECTRON, Temm.

Range.—From Assam, throughout Burmese countries, to Sumatra and Borneo (?).

1. POLYPLECTRON CHINQUIS. (Indian Polyplectron.)

Polyplectron chinquis, Temm. Pl. Col. 539.

Hab. Assam, Sylhet, Arakan and Tenasserim, down to Mergui.

This is the *Pavo tibetanus* of Linnæus, but, not being found in Tibet, cannot be called by that specific name. The best figure of the male bird is given in the 'Planches Coloriées.' We received two males of this species in 1857, presented to us by the Babu Rajendra Mullick, which are still living in good health in the Gardens. The same gentleman has again sent us a pair this year, but the female unfortunately died before reaching England. There is, however, no doubt that this fine bird would do well in captivity.

2. POLYPLECTRON BICALCARATUM. (Hardwicke's Polyplectron.)

Pavo bicalcaratus, Linn.

Polyplectron iris, Temm.

Polyplectron hardwickii, Gray, Ind. Zool. i. pl. 37.

Hab. Malacca, commonly received in collections of skins formed in Malacca; Sumatra (*Raffles*).

3. POLYPLECTRON CHALCURUM. (Sumatran Polyplectron.)

Polyplectron chalcurum, Temm. Pl. Col. 519.

Hab. Sumatra.

Mus. Brit.

4. POLYPLECTRON EMPHANES. (Napoleon's Polyplectron.)

Polyplectron napoleonis, Less. Trait. d'Orn. p. 487 (*desc. nulla*).

Polyplectron emphanum, Temm. Pl. Col. 540.

Hab. Perhaps Borneo.

Mus. Brit.

Genus 3. ARGUS, Temm.

Range.—Malay peninsula, Sumatra, and Borneo.

1. ARGUS GIGANTEUS. (Argus Pheasant.)

Phasianus argus, Linn.

Argus giganteus, Temm.; Vieill. Gal. pl. 203.

Hab. Malacca, and northwards to Mergui (*Blyth*); Siam (*Mouhot*); Sumatra in the deep forests, generally in pairs (*Raffles*); North-western Borneo (*Wallace*).

The Siamese and Bornean birds may probably constitute local varieties.

A second species of *Argus* (*Argus ocellatus*) has been created on the faith of certain feathers in the French National Collection, but the bird is otherwise unknown. See Bp. Compt. Rend. xlii. p. 878.

Subfam. III. MELEAGRINÆ.

Range.—America, north of Panama and east of Rocky Mountains to Canada.

Genus 1. MELEAGRIS.

1. MELEAGRIS GALLOPAVO. (Wild Turkey.)

Meleagris gallopavo, Linn. S. N. i. p. 268; Baird, B. N. Am. p. 615.

Hab. Eastern States of North America.

Mus. Brit.

2. MELEAGRIS MEXICANA. (Mexican Turkey.)

Meleagris mexicana, Gould, P. Z. S. 1856, p. 61; Baird, *l. c.* p. 616.

Hab. Table-land of Mexico.

3. MELEAGRIS OCELLATA. (Ocellated Turkey.)

Meleagris ocellata, Temm. Pl. Col. 112.

Hab. Guatemala, province of Peten, and Yucatan.

Subfam. IV. NUMIDINÆ.

Range.—Africa, inclusive of Madagascar.

Genus 1. NUMIDA.

Sect. A. *Numida*.

1. NUMIDA MELEAGRIS. (West African Guinea-fowl.)

Numida meleagris, Linn. S. N. i. 273; Hartl. Orn. W. Afr. p. 199.

Numida rendalli, Ogilby, P. Z. S. 1835, p. 153.

Numida maculipennis, Sw. B. W. Afr. ii. 226.

Hab. Western Africa, from the Gambia southwards through Ashantee to the Gaboon (*Hartl.*); Cape de Verd Islands (*Bolle*).

2. NUMIDA PTILORHYNCHA. (Abyssinian Guinea-fowl.)

Numida ptilorhyncha, Licht.: Rüpp. Syst. Verz. p. 105, pl. 39.

Hab. E. Africa, Abyssinia, Kordofan, and Sennaar (*Rüpp.*).

3. NUMIDA MITRATA. (Mitred Guinea-fowl.)

Numida mitrata, Pallas, Spic. iv. p. 18.

Hab. South Africa, and northwards along the east coast to the country opposite to Zanzibar, where a specimen was obtained by Capt. Speke (see P. Z. S. 1862, p. 12).

4. NUMIDA TIARATA. (Tiara'd Guinea-fowl.)

Numida tiarata, Bp.: Hartl. Orn. Madagasc. p. 68.

Hab. Madagascar.

Sect. B. *Guttera*.

5. NUMIDA CRISTATA. (Crested Guinea-fowl.)

Numida cristata, Pall. Spic. Zool. iv. p. 15; Hartl. Orn. W. Afr. p. 200; Lath. G. H. viii. pl. 122.

Hab. West Africa: Sierra Leone, Ashantee, and Agnapim (*Hartl.*).

6. NUMIDA PUCHERANII. (Pucheran's Guinea-fowl.)

Numida pucheranii, Hartl. Cab. Journ. f. Orn. 1860, p. 341.

Hab. Zanzibar.

The eastern form of *N. cristata*, and probably the bird taken by Layard for that species, in 'Ibis,' 1861, p. 120.

7. NUMIDA PLUMIFERA. (Plumed Guinea-fowl.)

Numida plumifera, Cassin, Pr. Ac. Sc. Phil. 1857, p. 321, et Journ. iv. p. 6, pl. 2.

Hab. Cape Lopez, Western Africa (*Du Chaillu*).

Mus. Brit.

Sect. C. *Acryllium*.

8. NUMIDA VULTURINA. (Vulturine Guinea-fowl.)

Numida vulturina, Hardw. P. Z. S. 1834, p. 12; Gould, Icon. Av. pl. 8.

Hab. Madagascar (*Layard*, *Ibis*, 1861, p. 120).

Genus 2. PHASIDUS, Cassin.

Range.—Western Africa.

1. PHASIDUS NIGER. (Black Phasid.)

Phasidus niger, Cassin, Pr. Ac. Sc. Phil. 1851, p. 322, et Journ. iv. p. 7, pl. 3.

Hab. Cape Lopez, W. Africa (*Du Chaillu*).

Genus 3. AGELASTUS, Temm.

Range.—Western Africa.

1. AGELASTUS MELEAGRIDES. (The Agelastes.)

Agelastes meleagrides, Temm. in Mus. Lugd.; Bp. P. Z. S. 1849, p. 145; Hartl. Orn. W. Afr. p. 200.

Hab. West Africa: Dabocrom (*Pel.*); Gaboon (*Verreaux*).

Mus. Brit.

Having enumerated the fifty-six species of the family which I am acquainted with as existing in a state of nature, I may now remark that twenty-five of them have been already possessed by the Society in a living state, namely:—

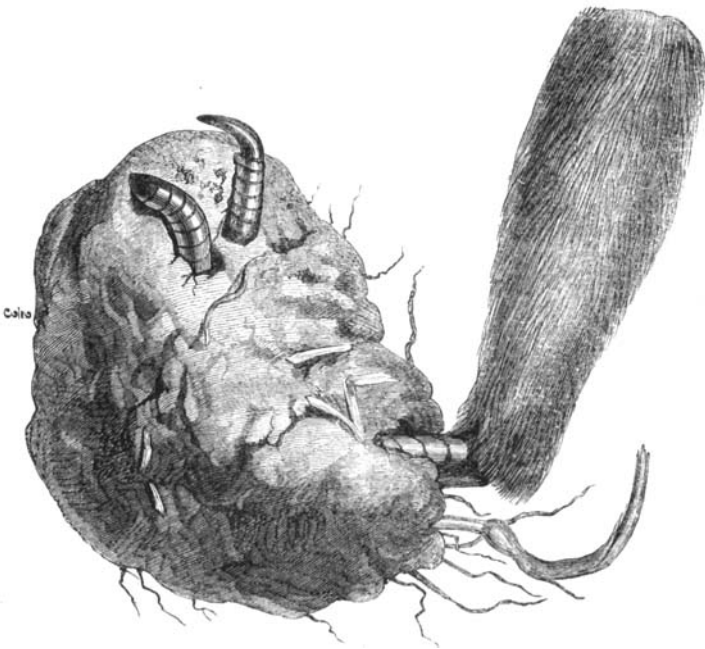
- | | |
|-----------------------------------|---------------------------------|
| 1. <i>Lophophorus impeyanus</i> . | 4. <i>Phasianus torquatus</i> . |
| 2. <i>Pucrasia macrolopha</i> . | 5. — <i>versicolor</i> . |
| 3. <i>Phasianus colchicus</i> . | 6. — <i>reevesii</i> . |

- | | |
|----------------------------------|------------------------------------|
| 7. <i>Phasianus wallichii</i> . | 17. <i>Gallus sonneratii</i> . |
| 8. <i>Thaumalea picta</i> . | 18. — <i>furcatus</i> . |
| 9. <i>Euplocamus vieilloti</i> . | 19. <i>Cerionis satyra</i> . |
| 10. — <i>erythrophthalmus</i> . | 20. — <i>melanocephala</i> . |
| 11. — <i>nychthemerus</i> . | 21. <i>Pavo cristatus</i> . |
| 12. — <i>lineatus</i> . | 22. — <i>nigripennis</i> . |
| 13. — <i>horsfieldi</i> . | 23. — <i>muticus</i> . |
| 14. — <i>melanotus</i> . | 24. <i>Polyplectron chinquis</i> . |
| 15. — <i>albocristatus</i> . | 25. <i>Argus giganteus</i> . |
| 16. <i>Gallus bankiva</i> . | |

N.B. Of the species printed in *italics* we have examples now alive in the Gardens.

5. ON AN ILLUSTRATION OF THE MANNER IN WHICH BIRDS MAY OCCASIONALLY AID IN THE DISPERSION OF SEEDS. BY ALFRED NEWTON, M.A., F.Z.S.

Last summer, my friend Mr. Henry Stevenson, the Secretary of the Norfolk and Norwich Museum, showed me the singular specimen which, by his liberality, I now exhibit. It will be seen that it is



the leg and mutilated foot of a French Partridge (*Caccabis rufa*, G. R. Gray), a great part of which is imbedded in a mass of clay.

At my request he has since furnished me with the following particulars respecting it :—

“On the 8th of December 1860, Mr. Sayer, a bird-stuffer at Norwich, showed me the Partridge's leg and ball of earth which I recently placed in your hands, and, in answer to my inquiries, gave me the following particulars :—‘A gentleman, whose name he did not know, but whose face was quite familiar to him as an occasional visitor to his shop, brought the leg to him a day or two before, stating that the bird to which it belonged had been seen, on a heavy-land farm in Suffolk, hobbling along in a very unusual manner, and was with little difficulty run down and secured. It was then found that the lower half of one leg was imbedded in a mass of earth, which raised it considerably from the ground, and necessarily kept the limb in a bent position. The bird was half starved.’

“The lump, measuring $7\frac{1}{2}$ inches in circumference, and weighing $6\frac{3}{4}$ oz., had become as hard as stone, and certainly in that state accounted for the bird not having been able to free itself from the encumbrance. Two toes only are visible, of which one has the nail torn off level with the edge of the mass itself. From the upper part protrudes a short bit of straw, and this being entangled round the foot probably by degrees collected the soil, which may also have been hardened by the frost at night. The unfortunate bird may, too, have been wounded in the leg, and thus unable to endure the pain of removing the earth when it first began to accumulate. I have no reason to doubt Mr. Sayer's statement, and believe he told me what he heard from the gentleman. The leg, when I saw it, looked fresh where it had been cut off.

(Signed) “HENRY STEVENSON.”

It will be remembered that Mr. Darwin, in his work on the ‘Origin of Species,’ speaks of the possibility of the seeds of plants being occasionally transported to great distances by being enclosed in earth adhering to the beaks and feet of birds; and he mentions the fact of his having “removed twenty-two grains of dry argillaceous earth from one foot of a Partridge,” in which earth “there was a pebble quite as large as the seed of a vetch” (pp. 362, 363). Now the mass of clay I exhibit is enormously greater than the quantity of earth mentioned by Mr. Darwin, and is sufficient to hold the germs of a very extensive flora.

Apart from the statement of Mr. Stevenson, that the lump, when he first saw it, was “as hard as stone,” and the contrast thereby afforded by the “fresh look” of the leg, a close examination of the specimen convinces me that the clay, as that gentleman suggests, accumulated gradually. The two toes which are visible have become distorted, and have accommodated themselves as well as they were able to the shape of the mass. I imagine also that the loss of the claw, noticed by Mr. Stevenson, has been experienced since the mass attained nearly its present size and shape; and it will be seen that the stump has perfectly healed over. Now all this must have taken some time; I do not venture to say whether days, weeks, or months. It is clear that, as the bulk and weight of the encumbrance increased,



J. Wolf, del. et lith.

M. & N. Hanhart Imp.

PROSIMIA MELANOCEPHALA.



J. Wolf del. et lith.

M & N. Hanhart. Imp.

OTOGALE PALLIDA.

it would more and more interfere with the bearer's means of obtaining a livelihood; and hence, weakened by starvation, the bird was finally unable to rise, and met its death in the manner stated.

If, as I believe, the clay accumulated by degrees, it is obvious that there was once a time when the incipient mass was no heavier a burden than the bird was able to bear in flight. What the actual limit was, is a question we have no means of determining; at least I am not aware of any experiments having been made tending to show what weight a Partridge is capable of supporting on the wing. But I trust I have said enough to justify me in bringing this before the Society as a singular illustration of the manner in which birds may occasionally aid in the dispersion of seeds.

6. REVISION OF THE SPECIES OF LEMUROID ANIMALS, WITH THE DESCRIPTION OF SOME NEW SPECIES. BY DR. J. E. GRAY, F.R.S., ETC.

(Plates XVII., XVIII., XIX.)

Having to examine some recently acquired specimens of Lemuroid animals from Western Africa, I was induced to re-examine the series of specimens of the family in the British Museum, and determine the different specimens of the genus which had been received within the last few years, and only named as they were entered in the list of accessions.

There has been published lately two monographs of the family, derived from the same collection, that in the Jardin des Plantes at Paris—the one by Isidore Geoffroy St. Hilaire and MM. Florent Prevost and Pucheran ('Catalogue Méthodique des Mammifères,' Paris, 1851), the other by a young Swedish naturalist, viz. A. G. Dahlbom ('Studia Zoologica,' Lund. 1856). And Dr. Peters, in his work on the 'Zoology of Mozambique,' has examined and described some specimens in the Berlin Museum. So that we may consider that the specimens in the best Continental museums have been carefully examined.

Every one must be struck with the number of genera into which the smaller species of the family are divided; while the larger species are all included in a single genus, divided into sections, which are more decided and more neatly characterized than several of the genera above referred to. This must be sufficiently evident when we find that the most striking and important—indeed I may say the only characters that M. Isidore Geoffroy can find to distinguish allied genera are as follows:—Hind legs, ears, and eyes very developed, *Microcebus*; hind legs, ears, and eyes extremely developed, *Galago*: to which, to be sure, he adds, the first is from Madagascar, and the second from continental Africa and the small islands adjacent to that continent.

PROC. ZOOL. SOC.—1863, No. IX.

In my outline of an attempt at the disposition of Mammalia into tribes and families, in the 'Annals of Philosophy' for 1825 (vol. x. p. 337), I divided the family *Lemuridæ* as under—

† Head long, grinders blunt. 1. *Lemurina*: *Lemur*, *Lin.* 2. *Lichanotina*: *Indris*, *Lacép*; *Lichanotus*, *Illiger*.

†† Head round. 3. *Loridina*: *Loris*, *Geoff.*; *Nycticebus*, *Geoff.* 4. *Galagonina*: *Otolicnus*, *Illiger*; *Galago*, *Adanson*; *Cheirogaleus*, *Geoff.* 5. *Tarsina*: *Tarsius*. 6. *Cheiromyina*: *Cheiromys*, *Cuvier*,—

considering *Galeopithecidæ* as a separate family.

M. Isidore Geoffroy, in the 'Catalogue of the Mammalia in the Paris Museum,' 1851, divides the Lemuroid animals into three families, viz. *Lemuridæ*, *Tarsidæ*, and *Cheiromyidæ*; and he divides the *Lemuridæ* into three subfamilies, according to the number of the teeth, thus—

I. *Indrisina*.—Grinders $\frac{5-5}{5-5}$; lower cutting teeth 2; in all 30. Genera *Indris*, *Propithecus*, and *Avahis*.

II. *Lemurina*.—Grinders $\frac{6-6}{6-6}$; lower cutting teeth 4; in all 36. Tarsus moderate, or of the usual length. Genera *Lemur*, *Hapalemur*, *Lepilemur*, *Cheirogaleus*, *Perodicticus*, *Nycticebus*, and *Loris*.

III. *Galagina*.—Grinders $\frac{6-6}{6-6}$; lower cutting teeth 4; in all 36. Tarsus elongate. Genera *Microcebus* and *Galago*.

The genus *Galeopithecus* is not included in the part of the work that has as yet appeared.

Mr. A. G. Dahlbom, in his 'Studies on the Primates in the Paris and other Museums,' proposes to divide the Lemurine Primates, or *Prosimiæ*, into three groups, according to the length and breadth of the feet, as defined by the comparative length of the tarsus and metatarsus, thus—

I. The *Prosimiæ brachytarsæ*, with tarsi shorter than the metatarsi. Genera *Indris*, *Avahis*, and *Propithecus*.

II. The *Prosimiæ isotarsæ*, with the tarsi and metatarsi equal in length. Genera *Perodicticus*, *Nycticebus*, *Loris*, *Lemur*, *Lepilemur*, *Cheirogaleus*.

III. The *Prosimiæ macrotarsæ*, with the tarsi much longer than the metatarsus. Genera *Galago*, *Hemigalago*, *Microcebus*, and *Tarsius*.

He regards the *Prosimiæ brachy-* and *iso-tarsæ* as forming the tenth family, *Lemuridæ*; the *Prosimiæ macrotarsæ* as a distinct or eleventh family; and forms the genus *Daubentonina*, Geoffroy (or *Cheiromys* of Cuvier), into a twelfth family, which he calls *Glirisimiæ*.

It will be seen by the foregoing observations that M. Isidore Geoffroy divides the group of Lemuroid animals into three families, according to the form and number of the cutting teeth—thus, *Lemuridæ*, *Tarsidæ*, and *Cheiromyidæ*. I think that such a division is both natural and convenient; and at the same time every one who well examines the osteological characters and the general habit, as well as the external appearance, of the two genera *Tarsius* and

Daubentonia, will come to the conclusion that in the zoological series the Aye-Aye (*Daubentonia*) is properly placed with the Lemuroid Mammalia, and that the genus *Tarsius*, by the disposition and the form of the teeth and by the length of the fingers, forms the link which explains the peculiarities of this otherwise apparently anomalous animal.

Fam. I. LEMURIDÆ.

Cutting teeth $\frac{2-2}{6}$ or $\frac{1-1}{4}$; the upper far apart; the lower compressed, shelving forward, the two outer larger, opposed to the space between the upper cutting teeth. The fingers and toes free, well developed; the first hind toe shorter, with an elongate curved claw.

Believing that the form of the head and size of the eyes, which indicate the extent of the nocturnal habits of the animal, are of more importance than the mere length and slenderness of the foot, I have proposed the following arrangement of the genera.

I observe that the length of the ears varies considerably in what are in other respects very nearly allied species, and that the ears are very often distorted in the stuffed specimens—so much so that a species may sometimes be said to have a long ear, while if observed alive it would be regarded as only having a moderately developed one; for the ears are often unduly stretched by the stuffer, and the form entirely destroyed; and in some cases they are as much shrunk by not being attended to when the skin is dried. This is important, as sometimes the species, or even a genus, has been described from a living specimen or from an animal preserved in spirits, and at others from a more or less well preserved or stuffed skin; and it is this difference of state that renders the recognition of the animal so difficult, and has caused so many synonyma. For these reasons I have united together into one group some of the genera of the smaller species which have been separated on slight differences in the apparent development and size of the ears.

I propose to arrange the genera as follows:—

I. *The head elongate; face developed; eyes moderate; hind legs elongate; fingers well developed, normal.*

* *Teeth 30; hind foot very short; great toe long.* Indrinina.

1. INDRIS. Tail none.

2. PROPITHECUS. Tail elongate.

** *Teeth 36; tail elongate; great toe broad.* Lemurina.

a. *Feet short; ears moderate.*

3. VARECIA. The head surrounded by a ruff; ears tufted.

4. LEMUR. Head without any ruff; wrist with a narrow bald line and pad above.

5. PROSIMIA. Head without any ruff; ears externally hairy; wrist hairy.

b. *Feet elongate ; ears large.*

6. OTOGALE.

II. *Head short ; face short, tapering ; eyes (and orbits) very large.*

* *Hind legs elongate ; tail elongate.*

† *Teeth 30 ; feet short, broad.* Microrhynchina.

7. MICRORHYNCHUS.

†† *Teeth 36 ; feet short, broad.* Galagonina.

8. HAPALEMUR. Ears moderate ; upper cutting teeth on the inside of canine.

9. CHEIROGALEUS. Ears moderate ; upper cutting teeth in an arched series.

10. LEPILEMUR. Ears large, elongate ; upper cutting teeth in an arched series. Tail with close-set short hair.

11. CALLOTUS. Ears very large, contractile. Tail with bushy hairs.

††† *Teeth 36 ; feet elongate, slender.*

12. GALAGO.

** *Fore and hind feet equal ; tail none ; feet short.*

† *The hands normal ; fingers free, index clawed.* Lorisia.

13. NYCTICEBUS. Limbs short.

14. LORIS. Limbs elongate, slender.

†† *Hands broad, short ; index finger abortive, clawless.*
Perodicticina.

15. PERODICTICUS.

I. *The head elongate ; face well developed ; the eyes moderate ; the hind legs much longer than the arms ; the fingers well developed, free, elongate, normal.*

The form of the head is best seen in the skull, which in this section is elongate ; the face is well developed, rather compressed ; and the orbits, though large, are much smaller than in the succeeding sections. The length of the head and the size of the orbits vary in the different species, and the division between this and the following tribe is not very strongly marked.

* *Grinders $\frac{5-5}{5-5}$; cutting teeth $\frac{2}{4}$; in all 30. The hind foot short, broad ; great toe very long, slender.* Indrina.

1. INDRIS, Geoff. 1796.

Lichanotus, Illig. 1811.

Pithelemur, Lesson, 1840.

Upper cutting teeth large, strong, compressed, one before the other in an arched line. Ears exerted, hairy. Nostril separated by a very narrow septum. Body thick. Feet short; tarsus shorter than the metatarsus. Tail rudimentary, very short. The great toe very long, slender, and covered with hair.

INDRIS BREVICAUDATUS, Geoff.

Lemur indri, Gmelin.

Indris niger, Vinson.

Var. white, called *Simpoune*.

Indris albus, Vinson, Compt. Rend. lv. 829.

Hab. Madagascar (*Brit. Mus.*).

The claws, like most of the *Lemuridæ*, when perfect are keeled and end in an acute tip.

Skull: length 3" 10"', breadth 2" 3"',—that is to say, measured in inches and twelfths of an inch or lines.

The four lower cutting teeth of the *Indris* occupy about the same space as the six in the other genera, the central ones being broader, while in the other genera the two central pair are very much compressed and slender; and the upper cutting teeth are stronger and broader; indeed the general character of the skull is to be stronger, though the teeth are fewer. In other respects there is very little difference in the dentition.

2. PROPITHECUS, Bennett.

Macromerus, A. Smith, 1834.

Habrocebus, Wagner, 1840.

Ears short, smooth inside, and visible in the fur. Nostrils separated by a moderate septum. Tail elongate. The two middle upper cutting teeth very large, oblique, sharp-edged. Great toe long, hairy.

PROFITHECUS DIADEMA, Bennett, P. Z. S. 1832, p. 20.

Hab. Madagascar (*Brit. Mus.*).

** *Grinders* $\frac{6-6}{6-6}$; *cutting teeth* $\frac{2-2}{6}$; *the tail elongate, hairy; the great toe short, broad.* Lemurina.

a. *The feet short; ears hairy externally, moderate or hidden; the upper cutting teeth subequal, on the side of the more or less prominent intermaxillary bone.*

The length of the feet are shown in the skeleton by the tarsal bones being shorter, or not longer, than the metatarsal ones; they are shorter than the shank or tibia, being generally about two-thirds the length of that part of the leg.

M. Isidore Geoffroy observes, the species of Lemurs "are numerous; many are very difficult to distinguish, or even doubtful."

It is to be observed that I have never seen the skin of a specimen that was caught wild in its natural habitat. All the specimens that have come under my observation have been living in menageries; and all the skins in the Museum are obtained from specimens which have

been so confined; and some of them have been even born in confinement, and are probably the hybrid offspring of two species, arising from the intermixture of different kinds in the same cages. Under such circumstances, it is very natural that there should be difficulties in separating them, and that there may be intermediate forms. Yet I may state that, when the specimens which have come under my examination have been carefully compared, I have had no difficulty in distinguishing them, and I have not found a single specimen which I have had the slightest reason to believe is a passage from one species to the other. And this is extraordinary when we consider the very imperfect material that is at our command for the determination of the species of this natural genus. In fact it appears to me, after my long experience, that whenever there is any doubt about the distinction of species, it always arises rather from the imperfection of the material at our command, and the consequent imperfection of our knowledge, than from any want of permanence in the species themselves. It is this that makes me doubt the wisdom of the theorists who would explain the order of the creation by the mutability of species, and take advantage of the imperfection of our knowledge as the basis of their theory, instead of placing their faith in practical naturalists, who have studied species in detail for years, and who are all, as far as I know, ready to declare that species (the history and detail of which are well known) are the most certain and best defined groups in nature, and are distinctly circumscribed, while genera, tribes, families, orders, and even classes are constantly gradually passing into each other, or contain species, or groups of species, of which it is difficult to say to which group they should be assigned. But, unfortunately all their works have too much of the spirit of an advocate, and sometimes there is evidence of special pleading, which is misplaced in a scientific essay.

My firm opinion, founded on forty years' experience, and after having had through my hands perhaps more specimens of animals of different classes than most living zoologists, if not more than any other, is that species are permanent; indeed they appear to me to be the only groups of individuals that seem to be well defined and separated from other groups by a distinct and unvarying character. I fully agree with the observations of Messrs. Bentham and Hooker, the authors of the '*Genera Plantarum*,' now being published, "that on the whole the natural grouping of individuals into species, and their limitation as such, is far more easy and satisfactory than of genera and of all the other superior groups."

It is no doubt true, as Mr. Darwin observed in his letter on Heterogenesis to the editor of the '*Athenæum*' for the 25th of April 1863, that the "origin or derivation of species from gradual change, however produced, does appear to connect large classes of facts"—that is to say, if such a derivation could be proved; but, unfortunately, during all my experience, and after most careful search (for the origin of species has always been a most interesting subject of my contemplation), I have never found the slightest evidence for the support of such a theory, or the least modification of any species

leading to such an opinion. We have, on the contrary, seen that even when any hybrid specimen has been artificially produced, there is always a strong inclination for the race so produced to return to the original form. And I must consider, as the authors above quoted have stated, that "the fact that species do in botany (and, I may add, zoology) stand out as the most prominent term in the series between individual and class is perhaps the most salient obstacle to the reception of the doctrine of the origin of these through variation by natural selection," or, I would add, any other theory that has been suggested; indeed it appears to be an insurmountable difficulty to the reception of the theory of the gradual modification of species altogether, however much such a theory might, if it were true, explain some of our difficulties*.



Varecia varia.

3. VARECIA.

The cheek and chin surrounded by a fringe of long hair. The

* I would refer to Professor Houghton's paper on the 'Origin of Species,' read before the Natural History Society of Dublin, on the 21st November, 1862, as a most excellent corrective of such fallacious theories.

ears pencilled at the end. The wrist hairy. The skull elongate. Face tapering, broad behind and shelving on the sides of the nose; superciliary ridges prominent, much higher than the forehead.

1. VARECIA VARIA.

B.M.

Lemur macaco, Gmelin.

Lemur varius, Geoff.

Maki vari, Buffon, H. N. xiii. 178, t. 27.

Prosimia macaco, Gray.

Fur black and white-varied.

Hab. Madagascar (*Brit. Mus.*).

Skull, with the face much lengthened, tapering. The nose high, shelving on the side to the central ridges. The grinders large; the upper cutting teeth one before the other, on the side of the projecting intermaxillaries. The interorbital space very narrow and depressed.

Length of skull 3" 9", breadth at zygomatic arch 2".

2. VARECIA NIGRA.

B.M.

Lemur macaco, Linn.

Lemur niger, Geoff. 1812; Schreb. Säugeth. t. 40 a; Peters, Mosamb. 21.

Fur uniform black.

Hab. Madagascar (*Brit. Mus.*).

3. VARECIA RUBRA.

B.M.

Lemur ruber, Geoff. 1812.

Fur red; wrist or ankles more or less white.

Hab. Madagascar (*Brit. Mus.*).

Skull wider, orbit more diverging, and the side of the nose higher and flatter, than in *V. varia*.

4. VARECIA LEUCOMYSTAX.

Lemur leucomystax, Bartlett, P. Z. S. 1862, p. 347, pl. xli.

Grey; patch on lower part of back and fringe round the face white.

Hab. Madagascar; living in the Zoological Gardens.

4. LEMUR.

Face without any ruff. Ears hairy externally. The hand with a bald line up the inside of the wrist, ending in a bald spot above. The tail ringed. Upper cutting teeth subequal, rather shelving. Skull with the forehead convex; face rather compressed, round above.

LEMUR CATTÀ, Linn.

B.M.

Macaco, Buffon, xiii. t. 22.

Prosimia catta, Lesson.

Hab. Madagascar.

Skull quite adult, length 3" 2", breadth 1" 10"; the interorbital space flattened, narrow; forehead convex.

5. PROSIMIA.

The head without any ruff or fringe. The ears hairy externally, naked at the tip, more or less exposed. The wrist hairy. The skull elongate; the face produced, rather compressed on the sides, rounded above; forehead flat.

* *Temple, cheek, forehead, and crown white.*

1. PROSIMIA ALBIFRONS.

B.M.

Lemur albifrons, Geoff.; Audeb. Makis, t. 3; Bennett, Zool. Gardens, i. 299, fig.

Grey-brown, hairs minutely punctulated; face and end of the tail black; hinder part of the head, including the forehead, cheek, temple, and base of ears, pure white; chest, belly, and inside of the limbs whitish grey.

Hab. Madagascar (*Brit. Mus.*). Living in the Zoological Gardens.

** *Temple, under the ears, and throat white.*

2. PROSIMIA NIGRIFRONS.

B.M.

Lemur nigrifrons, Geoff.; Bennett, Zool. Gard. i. 301, fig.

Blackish or grey, greyer on the sides beneath; base of the ears reddish white; cheek, throat, and chest white; nose grey; orbits, forehead, cheeks, and end of the tail black or blackish.

Hab. Madagascar (*Brit. Mus.*).

*** *Temples coloured like the back.*

3. PROSIMIA MELANOCEPHALA. (Pl. XVIII.)

B.M.

Fur yellowish brown, washed with black; chin and beneath pale rufous; head black above; cheeks, under the ears, with a convex puff of hair of the same colour as the back; tail brown, blacker at the end; hands and feet dark reddish brown.

Young of same specimen (perhaps a hybrid with some other yellow-puffed species): head rather paler; spot on side of the neck rather yellower and more silky and puff-like.

Hab. Madagascar (*Brit. Mus.*).

4. PROSIMIA MONGOZ.

B.M.

Lemur mongoz, Linn.

Mongous, Buffon, H. N. xiii. 298, t. 26.

L. albifrons of Menageries.

Fur reddish grey; throat, chest, and beneath reddish grey; the crown of the head black; face, chin, streak up the forehead and across the crown of the head black; cheeks and side of the forehead iron-grey.

Madagascar.

The specimens of this species vary in the breadth of the band or streak on the head, but it is also known by the black nose and the

iron-grey spot on each side of the forehead. Skull elongate, length 3.6, breadth 2.0; canines very large; interorbital space broad, convex; forehead flat; orbits produced on the sides.

**** *Temples rufous; the hairs elongated (forming a kind of whisker) beneath.*

5. PROSIMIA RUFIFRONS.

B.M.

Lemur mongoz, Schreb. Säugeth. i. t. 39 a (moderate).

Lemur rufifrons, Bennett, P. Z. S. 1833, p. 106; Fraser, P. Z. S. 1845; Zool. Typica, t. (bad).

Fur grey, with two small white cross streaks on each side of the rump; throat and beneath rufous; nose and line up the middle of the forehead black; sides of nose, cheeks, and large spot on each side of the forehead white; tail blackish, rather rufous at the base.

Hab. Madagascar (*Brit. Mus.*).

Both Schreber's and Fraser's figures leave out the peculiar stripes on the side of the rump.

Lemur rufus (Geoff.), *Maki roux* (Audeb. Makis, t. 2), seems to resemble this species, but we have it not; it may be only a variety.

Lemur rufiventer (I. Geoff. Cat. Mamm. 71) and *Lemur flaviventer* (I. Geoff. Cat. Mamm. 72) are probably allied species.

6. PROSIMIA XANTHOMYSTAX. (Pl. XVII.)

B.M.

Lemur xanthomystax, Gray, B.M.

Fur grey-brown, with a broad, black, indistinct dorsal streak; chin, chest, and beneath pale rufous; head and back of neck black; a large puffy spot on each side of the throat under the ear bright rufous; a large spot on each side of the forehead over the eyes grey; tail brown, blackish-washed.

Hab. Madagascar (*Brit. Mus.*).

This may be easily known from *P. mongoz* (with which it agrees by having the grey spot on the forehead) by the dorsal streak, and the red puff on the temples.

***** *Temples and cheeks and sometimes the side of the neck rufous.*

7. PROSIMIA CORONATA.

B.M.

Lemur coronatus, Gray, Ann. and Mag. N. H. 1842, x. 257; Voy. Sulphur, t. 4.

Fur pale grey; beneath reddish white; face white; temple, cheeks, and forehead rufous; spot on the crown of the head black; tail blackish, rufous at the base.

Var. white, *Maki albina*, Chenu, Ency. N. H. Quadr. 263, fig.

Hab. Madagascar (*Brit. Mus.*).

Lemur chrysampyx (Scheurmann, Acad. Brux. xxii., 1848), according to M. I. Geoffroy, differs from the foregoing species in the absence of the black spot on the crown, and the white colour of the lower and outer parts.

8. PROSIMIA ALBIMANA.

B.M.

Lemur mongoz, Audeb. Makis, t. 1.*Lemur albirnana*, Geoff.

Fur dark iron-grey, with a black streak on the hinder part of the back, and a black broad crescent at the base of the tail; nose, outer base of the ears, hands, chin, chest, and beneath white; temples and sides of the throat rufous; spot on forehead and underpart of orbit blackish.

Hab. Madagascar (*Brit. Mus.*).

9. PROSIMIA ANJUANENSIS.

B.M.

Lemur anjuanensis, Geoff.

Fur reddish iron-grey; chin and beneath paler; nose, head, nape, front of the body, and shoulders blackish grey; temples and outer base of the ears black; a large roundish spot on the side of the neck, under the ears, rufous; tail blackish-washed.

Hab. Madagascar (*Brit. Mus.*).

Easily known from *P. collaris* by the small size of the rufous spot on the side of the neck, and the black nose and head.

10. PROSIMIA COLLARIS.

B.M.

Lemur collaris, Geoff.

Fur dark or pale iron-grey; nose, outer base of the ears, chin, throat, and beneath white; orbits, temples, side of the face, chin, and sides of the throat rufous; tail iron-grey, rufous at the base.

Hab. Madagascar (*Brit. Mus.*).

This species differs from *P. albirnana* in the rufous spot on the side of the face being more extended, and the hands and feet are dark iron-grey. There is no dorsal stripe nor crescent at the base of the tail.

Prosimia rufifrons is easily known by the two small white stripes across each side of the rump.

P. albifrons by the white back of the head.*P. melanocephala* by the black head and yellowish fur.

P. xanthomystax by the indistinct broad black stripe down the back.

P. albirnana by the black dorsal streak and crescent at the base of the tail, and white feet.

P. coronata and *P. collaris* by the rufous band across the forehead.

b. *Feet elongate; tarsus longer than the metacarpus; ears exposed, nakedish.*

6. OTOGALE.

Ears large, membranaceous, contractile backwards. Cutting teeth $\frac{2-2}{6}$; upper slender, equal, nearly in the same line; lower close together, and projecting horizontally forwards. Skull rather elongate, broad. Anterior false grinder elongate, erect, conical, compressed,

with a slight notch at each side near its base; the lower canine large, conical, bent up; grinders large, broad.

* *Skull and face elongate. Otogale.*

1. OTOGALE GARNETTII.

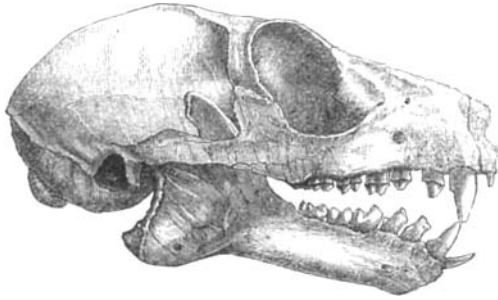
B.M.

Otolicnus garnettii, Ogilby, P. Z. S. 1838, p. 6.

Pale brown, yellowish beneath, with a white narrow band on each side of the loins. Tail half the length of the body; perhaps injured.

Hab. Port Natal.

Skull, length 2" 11"', breadth 1" 10½'.



Otogale garnettii.

2. OTOGALE CRASSICAUDATA.

B.M.

Otolicnus crassicaudatus, Peters, Mossamb. t. 2. t. 4. f. 1-5; Schrank. Cat. Bones B. M.

Galago crassicaudatus, Geoff. 1812.

Lemur crassicaudatus, Blainv.

Tail very long and thick.

Hab. Port Natal; East and West Africa; Mozambique(*Sunderall*).

Skull, length 2" 7"', breadth 1" 8'.



Otogale pallida.

** *Head short, broad; face short, conical; eyes large. Euoticus.*

OTOGALE PALLIDA, n. sp. (Pl. XIX.)

B.M.

Fur pale grey, whitish beneath, with a roundish white spot on the

side over the axilla and the groin; tail very long, cylindrical, nearly half as long again as the body and head.

Hab. Fernando Po (*Capt. Burton*, H. M. Consul).

Hind feet 2" 6^{'''}. Skull, length 2", breadth 1" 4^{'''}.

Skull: orbits prominent and produced on the sides, wider than the zygomatic arch.

This species, which has the teeth exactly like the other Otogales, by the shortness of its head and the large size of the eyes and orbit of the skull forms a passage to the Galagoids*.

II. *The head short, subglobose; face short, tapering; eyes very large.*

The skull is short, broad, depressed. The face very short, conical, tapering. Orbits very large, the zygomatic arches slender.

* *The hind legs much longer than the fore; fingers free, well developed; tail elongate, hairy.*

† *Feet short, broad; ears small, hairy, hidden; teeth 30, viz. grinders $\frac{5-5}{5-5}$, cutting teeth $\frac{2}{4}$.* Microrhynchina.

7. MICRORHYNCHUS, Jourdan, 1834.

Avahis, I. Geoff. 1835.

Indris, A. Smith, 1834.

Semnocebus, Lesson, 1840.

Tail elongate, cylindrical, hairy. Ears hidden under the fur. Nostrils separated by a narrow septum. Hind foot short and broad. Claws elongate, convex, acute; claw of front toe elongate, cylindrical.

MICRORHYNCHUS LANIGER.

B.M.

Lemur laniger, Gmelin.

L. lanatus, Schreb.

Avahis laniger, I. Geoff.

Brown, varied; rump, spot over groin, and beneath whitish, with a narrow white lunate band on the forehead.

Hab. Madagascar.

Length of foot about $2\frac{1}{2}$ inches.

†† *Feet short and broad, about two-thirds the length of the shank or shin; teeth 36, grinders $\frac{6-6}{6-6}$, cutting teeth $\frac{2-2}{6}$, the upper ones placed one before the other.* Galagonina.

8. HAPALEMUR, I. Geoff.

Hapalolemur, Giebel, 1859.

* Since this paper has been in print, I have procured from among some fragments of skins belonging to M. Du Chaillu a very imperfect skin, in a bad state, of a Lemur which appears to belong to this species; but it has a small white tip to the tail (probably accidental). It is marked "*Otolicnus apicalis*," so that this white-tipped variety is probably the animal noticed under that name in the Appendix to M. Du Chaillu's 'Travels,' p. 471.

Cutting teeth $\frac{2-2}{6}$, the upper ones behind the other on each side, crowded on the inside of the canine. Ears short and hairy. Tail elongate, hairy. Hinder limbs much longer than the front ones.

1. HAPALEMUR GRISEUS, I. Geoff. Cat. Méth. 75. B.M.

Lemur griseus, Geoff. 1796.

Maki gris, Buffon, Supp. vii. t. 24.

Cheirogaleus griseus, Van der Hoeven, Tijdsch. 1844, xi. t. 1. f. 1 (skull).

Dark iron-grey, with a yellowish tinge; hairs black, with a sub-apical reddish band; underside rather paler.

Hab. Madagascar. Shot in the woods.

The upper cutting teeth are placed one before the other, and crowded back so as to be on the inner side of the canine.

2. HAPALEMUR OLIVACEUS, I. Geoff. 1851.

Hab. Madagascar.

9. CHEIROGALEUS, Geoff.

Myspithacus, Fr. Cuv. 1833.

Myoxicebus et *Cebugale*, Lesson, 1840.

Cheirogaleus, Wagner, 1840.

Head very short, muzzle tapering. Ears small, hidden, bald on the edge. Cutting teeth $\frac{2-2}{6}$, the middle larger, in an arched series on side of intermaxillaries; the first false grinder in the upper jaw large, conical, erect, like a small canine, and in the lower jaw also rather large. Hind legs rather elongate, more equal than in the true Lemurs. The hind feet are short and broad, about two-thirds of the length of the shank.

M. Isidore Geoffroy, in his account of the genus *Hapalemur*, states that in *Cheirogaleus* "the cutting teeth are in straight cross lines, and the ears are membranaceous." If this is correct, the species here described are not *Cheirogalei*.

1. CHEIROGALEUS MILII, Geoff. 1828.

Maki nain, F. Cuv. Mamm. 1821.

"Grey-brown; palpebræ, sides of mouth, and whiskers black; throat, chest, and belly white; ears moderate, scarcely exerted, edge smooth, crest hairy; head globose; muzzle broad, depressed."

Hab. Madagascar.

2. CHEIROGALEUS TYPICUS, A. Smith, S. African Journal, ii.; Gray, Cat. Mam. B. M. 17. B.M.

Reddish brown; cheeks, throat, and beneath white; orbits blackish; tail cylindrical; fur on outside of ears blackish.

Hab. Madagascar.

Length of foot 2"; length of head about 2", and width about $1\frac{1}{2}$ ", as well as it can be measured on a stuffed specimen.

3. *Cheirogaleus smithii*, Gray, Ann. & Mag. N. H. 1842;
Cat. Mam. B. M. 16. B.M.

Microcebus pusillus, Waterhouse, Cat. Mus. Z. S. ed. 2. p. 12. no. 89.

Le Rat de Madagascar, Buffon, Supp. iii. t. 20.

Pale bay; chin and beneath pale yellow; outside of ears pale brown; orbits blackish; streak on nose and between the orbits white; the hairs are slate-colour at the base.

Hab. Madagascar.

Length of hind foot 1" 2'''.

This specimen is about one-fourth the size of the *C. typicus*. It may be the young of it; but the teeth, so far as one can see in a stuffed specimen, appear to be perfect.

Le Rat de Madagascar (Buffon, Supp. iii. t. 20) well represents this animal; but it has been considered as the type of the genus *Microcebus*, which is described as having a long slender hind foot.

We have a specimen in spirits, from the Zoological Society, that was named *Microcebus pusillus* by Mr. Waterhouse in the second edition of the Catalogue of the Museum of that Society, which agrees with this animal in almost all particulars; but the ears appear larger and bald, and the fur of the under part of the body whiter—perhaps both particulars arising from its having been preserved in spirits. The length of the feet and the teeth agree; but the feet, and especially the hands, are white and hairy, while in the dry specimen they are brown and nearly without hair.

It is sad to observe the persistence with which an error may be endowed. Vigors and Horsfield, in the 'Zoological Journal' in 1828, described an American Douroucouli as a Lemur, under the name of *Cheirogaleus commersonii*, believing that it came from Madagascar. This error was soon corrected; but Lesson retains it among the Lemuridæ, and re-named it *Glicebus rufus*; Schinz, in his 'Systematic Catalogue,' published in 1844, still retains it, and calls it *Scartes rufus* (vol. i. p. 102); and Giebel, 'Die Säugethiere,' published in 1859, p. 1018, still regards it as a *Cheirogaleus*.

10. *LEPILEMUR*? I. Geoff. 1851.

Microcebus, Waterhouse & Peters.

Cutting teeth $\frac{2-2}{6}$, the two front upper longer. Ears elongate, membranaceous, prominent. Foot broad, shorter than the shank. Tail cylindrical, covered with close-set short hair.

* *Back uniform.*

1. *LEPILEMUR MURINUS*.

B.M.

Lemur murinus, Miller, Cym. Phys. 25. t. 13.

Microcebus murinus, Waterh. Cat. Mus. Zool. Soc. 12. no. 90 (♂).

Galago minor, Gray, Ann. and Mag. N. H. 1842.

? *Little Macaco*, Penn. Quad.

Back pale reddish grey; underpart of the fur deep black; broad

streak up the nose between the orbits, the cheeks, and the underside whitish; front of the orbits on the sides of the nose brown; tail rather browner, slender, rather longer than the head and body; ears rather large, rounded at the end, pale, covered with short scattered hairs on the outside.

Hab. Madagascar; from Zoological Society.

Miller's figures very well represent this animal, but the tail is more bushy and browner than our specimens; the feet are of the proper size and form. The skull of the adult male has a rather longer nose than those of the typical *Galago*; and the orbits are very large, but scarcely so large as some of the species of that genus. It is $1'' 2\frac{1}{2}'''$ long, and $9\frac{1}{2}$ lines broad. The two front upper cutting teeth are large and bifid, the inner ones small and cylindrical. The upper canines are erect; the lower ones are decumbent. The first and second upper false grinders are slightly conical and compressed.



Lepilemur murinus.

2. LEPILEMUR MYOXINUS.

Microcebus myoxinus, Peters, Mossamb. Säugeth. i. 14, t. 4.

Hind feet short, two-thirds of tibia.

Hab. Eastern Madagascar.

The figure of Dr. Peters agrees pretty well with our specimen of *L. murinus*; but the whole colour of the fur is rather darker, and the ears are larger. The figure of the skull also agrees well with that of *L. murinus*. This is not a *Microcebus* as now restricted; the feet are too short and broad for that genus.

Skull, length $1'' 4'''$ (according to the figure), breadth $10\frac{1}{2}'''$.

It is very like my *Cheirogaleus smithii*, but the ears are too large. The ears are very apt to be unnaturally stretched in the stuffing, or the converse and allowed to shrink in the drying.

3. LEPILEMUR MUSTELINUS, I. Geoff. Cat. Mamm.; Archives du Mus. t. .

Rufous; throat white; forehead and cheeks grey; lower part of body yellowish; the tail, hands, and lower part of the legs yellowish grey; outer side of the last third of the tail brown; tail two-thirds the length of the body; ears large, rounded, membranaceous, dark.

Length of head and body $14''$, of tail $10''$.

Hab. Madagascar, 1842.

The description of this animal agrees in most particulars with *Lepilemur*, but it is said to have no upper cutting teeth. May not this be a peculiarity of the single specimen on which the species is founded?

****** *Back with a black streak, forked on the occiput.*

4. *LEPILEMUR FURCIFER.*

Lemur furcifer, Blainv. Osteogr. 1839.

Cheirogaleus furcifer, I. Geoff.

Cheirogale, Chenu, Encycl. Quadrum. p. 269, f. 218?

"Grey; back with a streak, forked on the occiput and extended to the eyes; end of the tail black."

Hab. Madagascar.

Dr. Dahlbom observes that this species would be a *Lepilemur* if it was without upper cutting teeth; but as our *Lepilemures* have these teeth, I think it had better be placed in this genus.

11. *CALLOTUS.*

The ears very long, membranaceous, the hinder edge contractile, so as to fold up the conch like the long-eared Bats. Teeth —? canines strong. Feet broad, short, only two-thirds the length of the shank. The toes broad, with distinct roundish disks. The thumb very broad. The eyes very large; the iris very contractile, leaving a very small, erect, oval or lanceolate pupil. Tail very long, with spreading hairs, tapering at the end.

CALLOTUS MONTEIRI.

Galago monteiri, Bartlett, MS.

Uniform pale grey; side of the nose rather dark; hair of the body soft, dark slate-colour, with long, white, rather crisp tips.

Hab. Western Africa: Angola.

This genus chiefly differs from *Galago* in the shortness, breadth, and strength of the hind feet. The animal is only known from a specimen living in the possession of Mr. Monteiro, who has had it for more than a year. It is of the size of a small Common Cat; larger than *Otogale crassicaudata*.

††† *Feet elongate, slender, nearly as long as the shank or shin; tarsal bone longer than the metatarsal.*

12. *GALAGO.*

Cheirosciurus, Cuv. & Geoff. 1795.

Galago et Galagoides, A. Smith.

Scartes, Swainson.

Ears large, pellucid, membranaceous, hinder edge contractile. Cutting teeth $\frac{2-2}{6}$; the upper equal, slender; the lower shelving upwards. The upper canines erect; the lower ones decumbent, shelving forwards and upwards. The first false grinder short, broad, three-lobed, like the others, and not prominent and erect like the canines.

PROC. ZOO. SOC.—1863, No. X.

- * *Tail thick, with spreading hairs; fingers and toes very slender, elongate; the upper cutting teeth placed in an arched line, one before the other.*

1. GALAGO ALLENII.

B.M.

Galago allenii, Waterhouse, P. Z. S. 1837, p. 87.

Fur dark, blackish brown; forehead, rump, and base of tail grey; arms and legs reddish-washed; nose-streak and underside of body whitish; tail black; toes and fingers very slender, free; ears moderate.

Length of hind foot 2" 10". Skull (imperfect), length about 2" 2", breadth 1" 5".

Var. *gabonensis*. Skull small, 2" 0", width 1" 4½".

Hab. West Africa: Gaboon; Fernando Po.

There is a considerable difference in the two skulls of this species which we have, though the skins resemble each other very closely, so much so that it would not be easy to distinguish them as varieties. The one from Fernando Po is larger, and the upper cutting teeth form an arched series, and the grinders are very large and broad. The one from the Gaboon is rather smaller in size, the upper cutting teeth are in nearly the same straight transverse line, and the grinders are scarcely three-fourths of the general width of those of the other skull. Both skulls seem to have their perfect and permanent teeth. Probably this may arise from the sex of the specimen; but the sexes are not marked, and there is no external character to distinguish them. In a third and younger specimen the upper cutting teeth are subequal, and placed one before the other; so that this seems to be the normal position of the teeth.

- ** *Tail clavate, hair of lower part adpressed, of end spreading; the fingers and toes broader, shorter; upper cutting teeth very slender, in a straight cross line.*



Galago maholi.

2. GALAGO MAHOLI.

Galago maholi, A. Smith, Illust. S. African Z. t.

Otolicnus galago, Wagner, Säugeth. Suppl. i. 292?

G. senegalensis, var., I. Geoff. Cat. p. 81.

?*Lemur* —, Brown, Illust. Zool. t. 44, 1776.

Scartes —, Swainson, Class. Mamm. 352, 1838.

Brownish grey; nose-streak, face, throat, and beneath whitish;

ears large; tail elongate, rather longer than head and body, subclavate, rather browner than the back.

Length of hind foot 2" 5".

Var. smaller; orbits darker.

Length of hind foot 2" 3". Skull, length 1" 6", breadth 1" 0".

Hab. South Africa.

Brown's figure seems to represent this species; but the hind foot is too short—having about the same proportion, compared with the shank-bone as *Lepilemur*; therefore I have only referred it to this species with doubt.

The fine male specimen which served as the type of Sir Andrew Smith's figure has the orbits of the same colour as the rest of the face; in two other rather smaller specimens in the Museum the orbits are darker, in one nearly black.

There are two skulls of this species in the Museum Collection, both from South Africa. They vary very slightly in the size of the teeth, especially in the breadth or squareness of the grinders. The upper cutting teeth are cylindrical, elongate, of the same size, and placed in a nearly straight cross line; the first upper false grinder is broad and lobed, like the second one.

3. *GALAGO SENEGALENSIS*, Geoff. 1796; I. Geoff. Cat. 81. B.M.

Galago geoffroyi, Fischer.

Galago acaciarum, Lesson.

Lemur galago, Schreb. Säugeth. t. 38 B.

Ears oblong, rounded at the end; fur grey; nose-streak, chin, and beneath white; tail and feet blackish brown; tail rather longer than the body and head; orbits blackish.

Length of hind foot 2" 3", of head 1" 7".

Hab. West Africa: Senegal; Gambia.



Galago sennariensis.

4. *GALAGO SENNARIENSIS*.

Galago (senegalensis) sennariensis, Kotschy, MS. B.M.

Bluish grey; face and feet blacker; orbits black; throat and under part of body and inside of limbs white; tail very long, one-half longer than the body and head, blackish; ears very large, rounded; fingers and toes slender.

Length of hind foot 2". Skull, length 1" 6" (about the back being imperfect), width 1" 2½".

Hab. "Sennaar, on the Nile."

The upper front cutting teeth are very slender, longer and more produced, the upper grinders are broader and squarer, and the hinder one is more triangular than in *G. maholi*.

There are three specimens of this species in the Museum, unfortunately not in a good condition; but they all decidedly differ from *G. maholi*, especially in the length of the toes, and in the fingers and toes being more slender. These three species are very similar, and I think they may easily be distinguished by the length and colour of the tail. *G. maholi* and *G. senegalensis* have the tail only rather longer (not more than one-fifth) than the body and head. In *G. maholi* the tail is rather dark, but grey; in *G. senegalensis* it is much darker, being blackish brown. In *G. sennariensis* the tail is much longer than the body and head, and black. There seems also to be some difference, although difficult to describe, in the proportion of the ears and the head.

The following species have not come under my observation:—

1. *Galago conspicillatus*, I. Geoff. Cat. p. 81.

Ears acute, triangular, acute at the tip; fur above black-brown, beneath grey; tail elongate.

Hab. Port Natal; South Africa.

2. *Otolicnus peli*, Temm. Esquiss. Zool. 42.

3. *Galago senegalensis*, Rüppell, Abyss. Wirbelth.

4. *Otolicnus senegalensis*, Peters, Mossamb. ii. t. 4. f. 11–13.

Hab. Mozambique.

5. *Otolicnus teng*, Sundevall, Königl. Petersb. Akad. 1842, p. 201.

*** Tail slender, cylindrical; ears smaller.

Hemigalago, Dahlbom, 1857.

"A new genus, intermediate between *Galago* and *Microcebus*, I. Geoff."



Galago demidoffii.

5. *GALAGO DEMIDOFFII*, Fischer, Mém. S.N. Mosc. (1806). B.M.

Hemigalago demidoffii, Dahlbom, Stud. p. 230, t. 10.

Galago senegalensis, L. Fraser.

Galago murinus, Murray, Edinb. Phil. Journ. n. s., x. t. 11.

Brown; side of face dark; nose-streak white, narrow; chin, throat,

and below reddish grey ; tail one-half longer than the body and head, darker at the hinder half.

Skull, length 1" 5"', width $10\frac{1}{2}$ ". Length of hind foot 1" 8".

Hab. West Africa : Gaboon.

There are several specimens of this animal in the Museum Collection. The skin of the adult measures about 5 inches long, from the tip of the nose to the base of the tail ; the tail is $7\frac{1}{2}$ inches long ; the hind foot and shin are about 1 inch 8 lines long. There are some smaller specimens in spirits, which appear to be younger, which have the hind foot only 1 inch and from 4 to 6 lines long.

I am induced to suppose that Mr. Murray's *Galago murinus* from Old Calabar is the young of this species, as the hind foot is figured about $1\frac{1}{2}$ inch long.

The skull without a lower jaw, which in the Museum Catalogue of Bones is put under *Microcebus myoxinus* (p. 33), evidently belongs to this species.

**** *Tail cylindrical, elongate ; ears small, partly hidden.*

Microcebus, Geoff. 1828.

Myscebus, Lesson, 1840.

Myocebus, Schinz, 1844.

6. GALAGO MADAGASCARIENSIS, Geoff. Tab. d. Quadr. 1812.

Microcebus rufus, Geoff. Cours Mam. 1825 ; I. Geoff. Cat. 80.

Lemur pusillus, Geoff. Bull. Phil. i. p. 89, 1795.

Microcebus rufus, Schinz, p. 107, 1841.

Petit mongous, Buffon, xiii. 177 ?

Rat de Madagascar, Buffon, Suppl. iii. p. 147, t. 20 ?

Hab. Madagascar.

Buffon's figure of *Le Rat de Madagascar*, which is the type of *Lemur pusillus*, represents the animal as having a short hind foot, and in that particular better represents my *Cheirogaleus minor* than any animal that M. I. Geoffroy would place with the *Galagina*, or M. Dahlbom with the *Macrotrache*. I have never seen a *Lemur* with small ears and a long foot ; so that I suppose a true *Microcebus* has not occurred to me ; and I doubt much if Buffon's figure represents the genus.

** *The fore and hind feet nearly equal in length ; feet short, broad.*

† *Great toe very broad ; tail none ; index finger short.* Lorisina.

13. NYCTICEBUS, Cuvier, 1795.

Bradicebus, Geoff.

Bradycebus, Blainv. ; Lesson.

Head subglobose. Body and limbs stout and strong.

NYCTICEBUS TARDIGRADUS.

B.M.

Stenops tardigradus, Van der Hoeven.

Hab. Borneo and Sumatra.

2. *NYCTICEBUS JAVANICUS*, Geoff. 1812; V. d. Hoeven, Nat. Tijdschr. viii. p. 345, t. 6. f. 1, 2, 3, t. 7. f. 5-7. B.M.
Hab. Java.

14. LORIS.

Prosimia, Cuv. & Geoff. 1798.

Stenops (part), Illiger.

Arachnocebus, Lesson, 1840.

Head small; nose conical; ears thin, produced. Body and limbs elongate, slender.

LORIS GRACILIS, Linn.

B.M.

Loris, Buffon, xiii. t. 30.

Loris ceylonicus, G. Fischer.

Hab. Ceylon. India: Pondicherry.

Skull and skeleton in British Museum.

†† *The hand broad; the index finger abortive, clawless; eyes moderate.* Perodicticina.

15. PERODICTICUS, Bennett.

Tail shorter than the body. The hands and feet large. Fingers and toes free at the ends; the index finger rudimentary, but distinct. Lower cutting teeth large and prominent, and projecting. The apices of the vertebræ of the back, neck, and withers projecting beyond the skin, like prickles.

PERODICTICUS POTTO.

B.M.

Perodicticus geoffroyi, Bennett, P. Z. S. 1830, p. 109; Murray, Proc. Roy. Phys. Soc. Edinb. 1860, p. 191. fig. of hand and feet.

Potto bosmani, Lesson.

Hab. Sierra Leone; West Africa.

Skull and skeleton in British Museum.

16. ARCTOCEBUS.

Tail very short. Hands and feet small, with the lower phalanges (not including the thumb) united in the skin, the two upper joints free; the index finger abortive, reduced to a tubercle. Lower cutting teeth small, hyaline, hidden by the lips.

ARCTOCEBUS CALABARENSIS.

Perodicticus calabarensis, Smith, Proc. Roy. Phys. Soc. Edinb. 1860, p. 172. f. 1, 2 (hands), f. 3, 4 (head).

Hab. West Africa; Old Calabar.

Fam. II. TARSIDÆ.

Cutting teeth $\frac{4}{2}$, erect, cylindrical, conical; the two upper front elongate, acute; the lower ascending obliquely, crowded between the canines; grinders $\frac{6-6}{6-6}$. The fingers and toes free, well developed;

the first and second hind toes shorter, each with an elongate curved claw. Head short. Eyes and orbits very large. Limbs free, elongate. Foot very long, as long as the shin. Tail elongate, hairy.

TARSIVS, Storr, 1780; Daub. 1792.

Macrotarsus, Cuv. & Geoff.

Tarsier, Lacép.

Cephalophacus, Swainson, 1835.

Hypsicebus, Lesson, 1840.

TARSIVS SPECTRUM, Geoff.; Dahlbom, Studia, +. 11 (skeleton).

Tarsius pallasii, Geoff. B.M.

Tarsius daubentonii, Audeb.

Tarsius bancanus, Horsf. Java, t.

Lemur tarsius, Erxl.

Lemur spectrum, Pallas.

Didelphis macrotarsus, Gmelin.

Hab. Borneo; Celebes.

Fam. III. DAUBENTONIADÆ.

Cheiromyidæ, Bonap.

Glirisimiæ, Dahlbom.

Cutting teeth $\frac{2}{2}$, compressed, large; canines none; grinders $\frac{4-1}{3-3}$.

Limbs free. The fingers and toes well developed. The fingers very long and slender. The great toe broad. The index finger with a sharp curved claw. Face short. Tail elongate, hairy.

DAUBENTONIA, Geoff. Decad. Philos. iv. p. 193, 1795; Dahlbom, 1851.

Aye-Aye, Lacép. 1799.

Cheiromys, Cuvier, 1800.

Chiromys, Illig. Prod. 1811.

Cuvier refused to use the name proposed by Geoffroy, because it was given in honour of a person; but as this rule has not been generally observed, the objection ceases to be operative.

DAUBENTONIA MADAGASCARIENSIS, Geoff.; Dahlbom, Studia, p. 236, t. 12. B.M.

Aye-Aye, Sonnerat, Voy. Ind. ii. p. 138, t. 76. 1782.

Sciurus madagascariensis, Gmelin.

Cheiromys madagascariensis, Geoff. 1803; Owen, Trans. Zool. Soc. 1863.

Hab. Madagascar.

Fam. IV. GALEOPITHECIDÆ.

Cutting teeth $\frac{4}{3}$, the upper middle small, side one compressed, lower shelving, pectinate; canines $\frac{1-1}{1-1}$, like the molars; grinders $\frac{5-5}{5-5}$. Limbs and tail united by a membrane covered with fur. Limbs

short, subequal. Fingers and toes short, subequal, compressed, united by a membrane.

GALEOPITHECUS.

1. GALEOPITHECUS VOLANS.

B.M.

Lemur volans, Linn.

Galeopithecus variegatus, Geoff.

Galeopithecus rufus, Geoff.

?*Galeopithecus ternatensis*, Geoff.

G. temminckii, Waterh.

Galeopithecus undatus, A. Wagner; Schreb. Säugeth. i. p. 326, t. 307 b.

Hab. Java; Sumatra; Borneo; Siam.

2. GALEOPITHECUS PHILIPPINENSIS, Waterhouse, P. Z. S. 1838, p. 119. B.M.

Hab. Philippines.

?3. GALEOPITHECUS MACROURUS, Temm.

7. DESCRIPTIONS OF TWO NEW GENERA OF LIZARDS (HOLASPIS AND PORIOGASTER, A. SMITH, MS.). BY DR. J. E. GRAY, F.R.S., ETC.

(Plates XX., XXI.)

Sir Andrew Smith, M.D., having most kindly sent to the collection of the British Museum two most interesting Lizards, which he has very properly named as the types of two new genera, I hasten to send to the Society a short description of each of them under the MS. names which Sir Andrew Smith has attached to them in his museum.

The first genus is allied to the family *Lacertinidæ*, and is at once known from all the genera of that group by the peculiarity of having two series of broad band-like scales down the vertebral line of the back, which are continued on the upper surface of the base (and probably of the whole length) of the tail; but the single specimen which I have seen has evidently had the end of the tail reproduced and covered with abnormal scales. The tail is depressed, and has a series of prominent keeled scales, forming a dentated keel on each side.

This genus I consider forms a distinct family, which may be called *HOLASPIDÆ*, distinguished from *Lacertinidæ* by the form of the tail and the peculiarities of the scales.

1. HOLASPIS, A. Smith, MS.

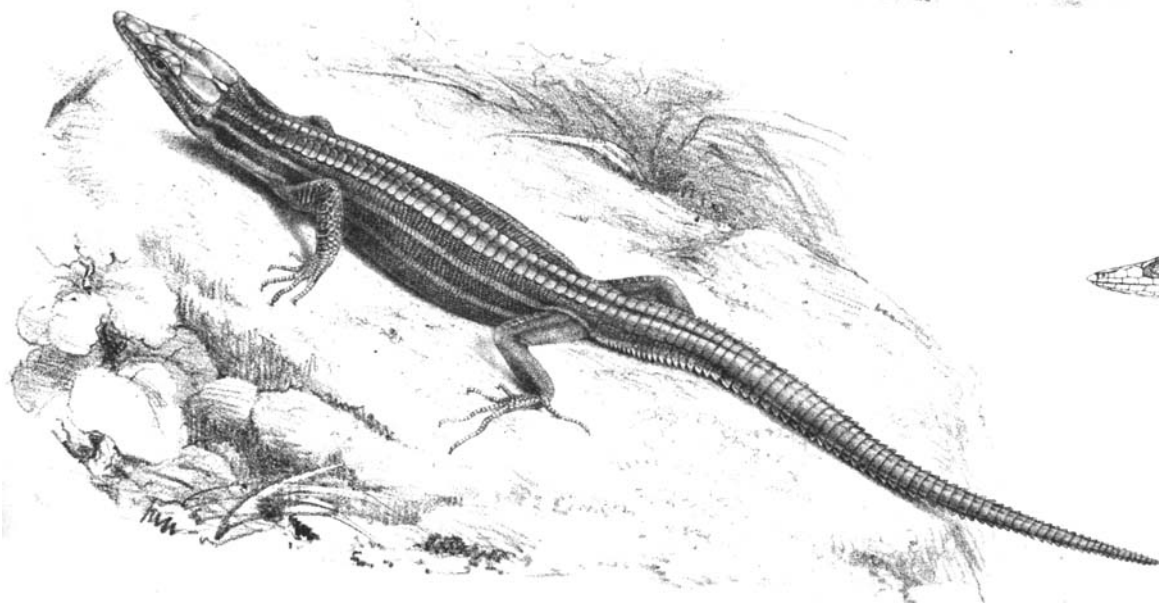
Head pyramidal, depressed; crown covered with regular, many-sided shields; side of face shielded; nostrils nearly on the ridges near the front of a single scale with a shield in front of it; labial

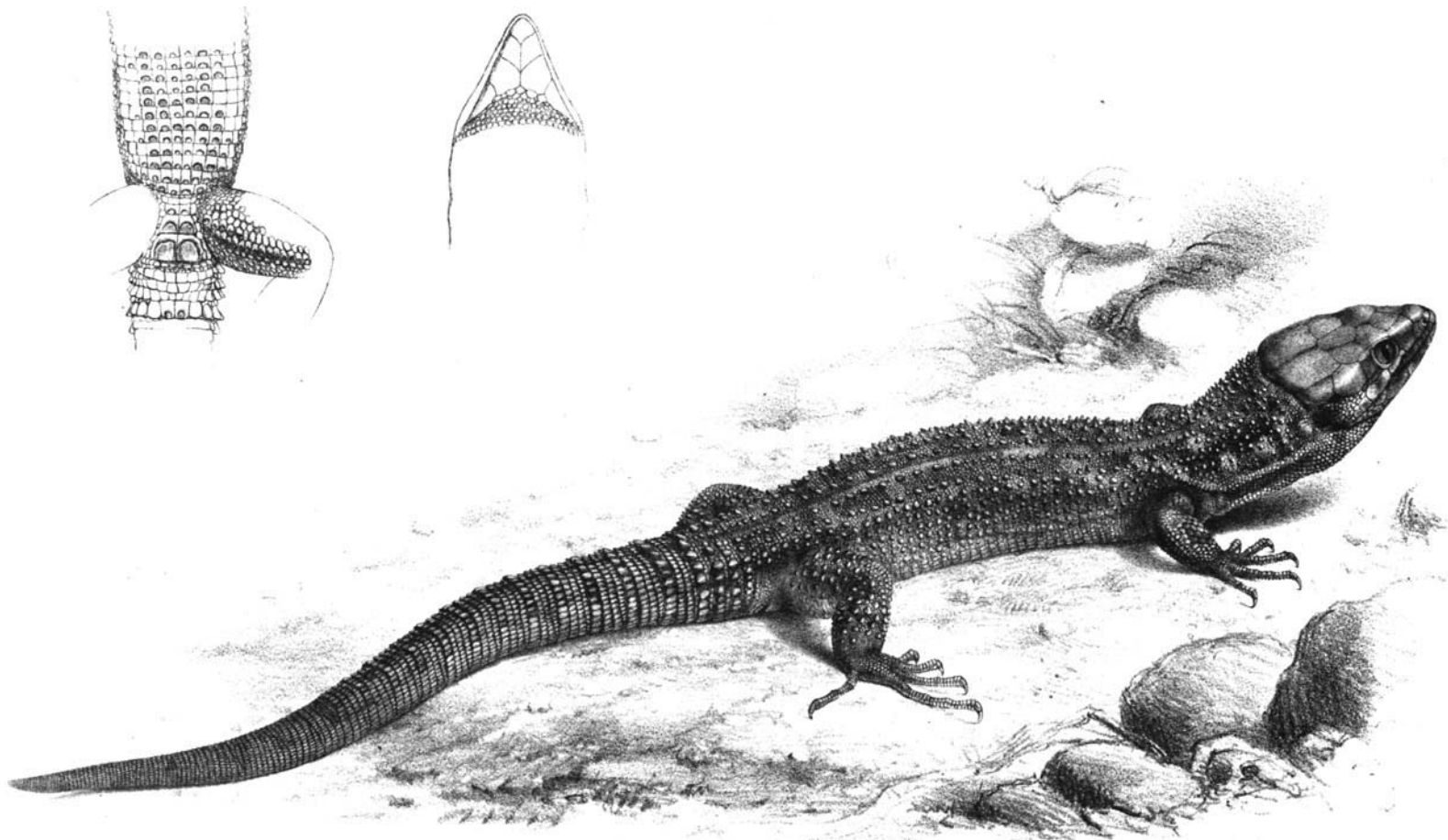


1



2





G.H.Ford.

Poriodogaster grayii.

WWest imp.

shields low; temple covered with small scales; eyes lateral; lower eyelids scaly; eyebrow covered with three large shields; ears large, oblong, erect, open; tympanum rather sunk; tongue slender, retractile (?); the apex deeply notched, acute. Body depressed, with a slight keel on each side of the belly. The back and upper part of the neck covered with whorls of narrow elongated keeled scales, with two series of smooth, oblong, transverse shields, one on each side of the vertebral bones. The belly covered with cross series of square smooth shields, placed in few longitudinal series. The throat and neck covered with small rather convex scales, and with a distinct collar formed of a regular series of large half-ovate scales. The legs rather depressed, covered with granular convex scales; the front legs with a series of broad smooth shields on the upper front side; the thighs with two (an upper and lower) series, and the hind legs with an inferior series, of smooth broad shields, like those on the front of the fore legs; the hind feet slightly fringed on the inner side; toes 5:5, elongate, slender, unequal; claws acute. The femoral pores small. Vent with a single half-oblong shield in front. Tail depressed, with a fringe of compressed close scales on each side, the sides covered with rings of small convex scales, and with two series of small broad band-like shields on the upper and lower surface.

Mr. Cope has pointed out to me that this genus agrees in many particulars with the genus *Placosoma* of Fitzinger, MS., described by Von Tschudi in an article on the family of *Ecpleopoda* (Arch. für Naturg. 1847, pp. 50 & 58).

The scaling seems very similar; but the body of *Placosoma* is not said to be so depressed and fringed on the sides; and the small part of the tail that remains on the specimen described is not said to be depressed and fringed on the side; and I can hardly believe that Herr von Tschudi would have overlooked such a peculiar form, and therefore I believe they are different.

Herr von Tschudi describes the scales on the upper surface of the small part of the tail that remains, which is only 3 lines long, as small, like those on the sides; but in Dr. Smith's genus the upper surface of the tail is covered with two rows of large shields, like the back.

Placosoma cordylinum is described from a specimen in the Museum at Bonn, on the Rhine, collected by Dr. John Natterer in North Brazil; and it is probable that the *Holaspis guentheri* may also be a Tropical-American form.

HOLASPIS GUENTHERI, A. Smith, MS. (Pl. XX. fig. 1.)

Bluish brown (in spirits), with three bluish-white equidistant regular lines down each side of the head, neck, and body, and a stripe down the front of the fore leg.

Hab. — ?

The specimen was purchased in Paris without any habitat affixed to it.

The tail has been reproduced, and the reproduced part is of the normal form, fringed and toothed on the sides, but of a different, that is to say, uniform dull leaden colour.

The second genus has many characters in common with *Xantusia* of Baird, and will most probably belong to the family *Xantusiidae*, as proposed in the 'Proceedings of the Academy of Sciences,' Philadelphia, for 1858, p. 255.

2. PORIOGASTER, A. Smith, MS.

Head pyramidal; sides erect; crown flat, hard, bony, covered with very thin polygonal normal shields; superciliary ridge bony, solid; temple covered with a shield; lower jaw thick, bony, solid, covered with a single series of large broad, thin, membranous shields, which are united in a straight line on the middle of the chin; eyes circular, large, lateral, without any eyelids; pupil large, circular; tongue not retractile, broad, flat, attached nearly to the tip, the tip only obscurely nicked; teeth simple; ears oblong, large, with a groove to the angle of the mouth; tympanum sunken; nostrils lateral, anterior in the suture between two nasal shields, the front situated between the upper edge of the rostral and the front odd plate. The sides of the neck and throat covered with moderately sized, round, convex, nearly uniform-sized scales. The throat with two folds on each side, and with a cross fold in front of the chest; these folds are covered with scales of the same size and kind as the rest of the throat. The back of the neck, back, and sides of the body covered with uniform, convex, roundish scales, with numerous scattered, larger, prominent, conical, tubercular scales, placed in longitudinal rows along the centre of the back, and larger and more abundant ones on the sides. The belly covered with cross series of square flat smooth shields, most of which have a dark large pore-like crypt in the middle of their hinder edge; the shields of the chest are smaller, more numerous, and placed in converging lines. The legs strong, covered with round convex scales; the hinder ones armed with larger prominent tubercles on the upper surface. Toes 5:5, unequal, slender; claws sharp, curved, the under surface covered with flat shields; femoral pores large, distinct. The front of the vent covered with three pairs of equal flat shields, each having a very large crypt in the middle of its hinder edge, the hinder pair next the vent being the largest. The tail cylindrical, tapering, covered above with rings of square keeled scales, every fourth ring being larger, prominent; the under side with rings of small square shields.

PORIOGASTER GRAYII, A. Smith, MS. (Pl. XXI.)

Brown, yellowish beneath.

Hab. — ? British Museum.

Mr. Cope, to whom I have shown the specimen of this species, has drawn my attention to the genus *Xantusia* of Professor Baird, noticed in the 'Proceedings of the Academy of Natural Sciences' for 1858, p. 255, which agrees with it in many particulars, but is certainly distinct, though probably belonging to the same family, *Xantusiidae*, which may be characterized by the form of the tongue, the front fold on the throat uniting the ears, and the absence of the eyelids.

Professor Baird describes the pupil of *Xantusia* as vertical; in our genus it is circular.

This similarity to *Xantusia* makes it probable that this genus is from Lower California.

M. Auguste Duméril, in the 'Revue et Magasin de Zoologie' for 1852, describes and figures a new genus of Saurian under the name of *Lepidophyma flavimaculata* (t. 17), from the province of Peten in Central America, which resembles this Lizard in many particulars; but he particularly says that it has no femoral pores, which he says are found in all the *Zonures* with which he has compared it.

M. Duméril's genus is probably the same as the *Xantusia* of Baird; but cannot be the same as the one here described, which is peculiar, not only from having large femoral pores, but pores on the ventral shield as well.

Mr. E. Blyth exhibited some horns and other specimens which had been obligingly lent him for that purpose by the authorities of the South Kensington Museum.

Among them were a pair of loose horns and odd right and left horns (of different individuals) of a species of Deer that had been presented to Her Majesty by the Siamese Embassy lately in London, and made over to the South Kensington Museum by Her Majesty's command. (See figs., next page.)

The last were considered by Mr. Blyth to indicate the existence of an undescribed species of Deer, probably inhabiting Siam, which he denominated *Cervus* or *Rucervus schomburgki*, in compliment to his distinguished friend, Her Majesty's representative at the court of Bangkok. He had seen a similar pair of horns upon the frontlet, in Calcutta, in the possession of a sailor, who was unable to inform him of their origin; but Mr. Blyth had considered that pair, at the time, to represent a remarkable variety of horn of the *Rucervus duvaucelii* of India. The occurrence, however, of horns of three additional individuals of the same type, and the region from which they were all but certainly brought, induced him to believe that they indicated a veritable species, separated in its geographic range from that of *R. duvaucelii* by the intervention of the range of *Panolia eldi*. The latter extended from the Munipur Valley to that of the Irawádi (the species being common in Lower Pegu), and reappeared in the southern Tenasserim province of Mergui, and in that of Keddá within Siamese territory, a region where the *R. duvaucelii* or Indian Bárá Singhá was quite unknown. The horn of *R. schomburgki* much resembled that of the Bárá Singhá, but was remarkable for the extreme shortness of the beam, combined with a well-developed crown- and brow-antler, imparting a characteristic aspect. Had it not been for his extreme familiarity with the varieties of horns presented by the various Deer of India and neighbouring countries, Mr. Blyth would scarcely have ventured to consider the *Rucervus schomburgki* as distinct from *R. duvaucelii* of India, but under the circumstances he did not hesitate in regarding it as a second species of the same peculiar type.

A singularly contorted horn of a domestic Buffalo, also from Siam, was exhibited, gyring round much in the manner of an ordinary



Helix-shell, with the spires in absolute contact ; and, from the same country, the anterior and posterior horns of different individuals of *Rhinoceros sumatranus*, which Mr. Blyth considered to be identical with the *Rh. crossii* of Dr. Gray (figured in P. Z. S. 1854, p. 250). Dr. Gray's specimen in the British Museum, according to Mr. Blyth, measures but 16 inches (not 24 inches) in span from base to tip,

and was certainly referable to *Rh. sumatranus*. Mr. Bartlett possessed a posterior horn of the same species, received with various Dyak weapons, &c., from Borneo, where the species would exist together with *Rh. sondaicus* (v. *javanicus*); and Mr. Blyth had been apprised of a two-horned Rhinoceros having also been killed in Asám, where it was considered a great rarity. He had elsewhere shown (Journ. As. Soc. 1861, p. 151) that both *Rh. sondaicus* and *Rh. sumatranus* inhabit the Indo-Chinese region and Malayan peninsula, and that, so far as he could learn, they were the only Rhinoceroses of that great range of territory, as *Rh. sondaicus* (and not *Rh. indicus*) was the only known species inhabiting the eastern Sundarbans of Bengal.

Mr. Blyth next called the attention of the Meeting to a frontlet with horns of a peculiar species of Buffalo, supposed to be from Africa, but the origin of which was unknown. The specimen had long been hung up in the Museum of King's College, where it bore his MS. name *planiceros*, imposed nearly a quarter of a century ago. This specimen he was permitted to exhibit through the kindness of Professor Rymer Jones. A second and much younger example of the same species had long been exhibited in the Museum of the Royal College of Surgeons, in the catalogue of which it had been assigned to the Gayal (*Bos frontalis*) of the Transbrahmaputran regions*, to which species it was not even specifically allied—it being unquestionably the frontlet of a veritable Buffalo, and of the African type, as distinguished from the Asiatic, as exemplified by *Bubalus caffer* and *B. brachyceros*.

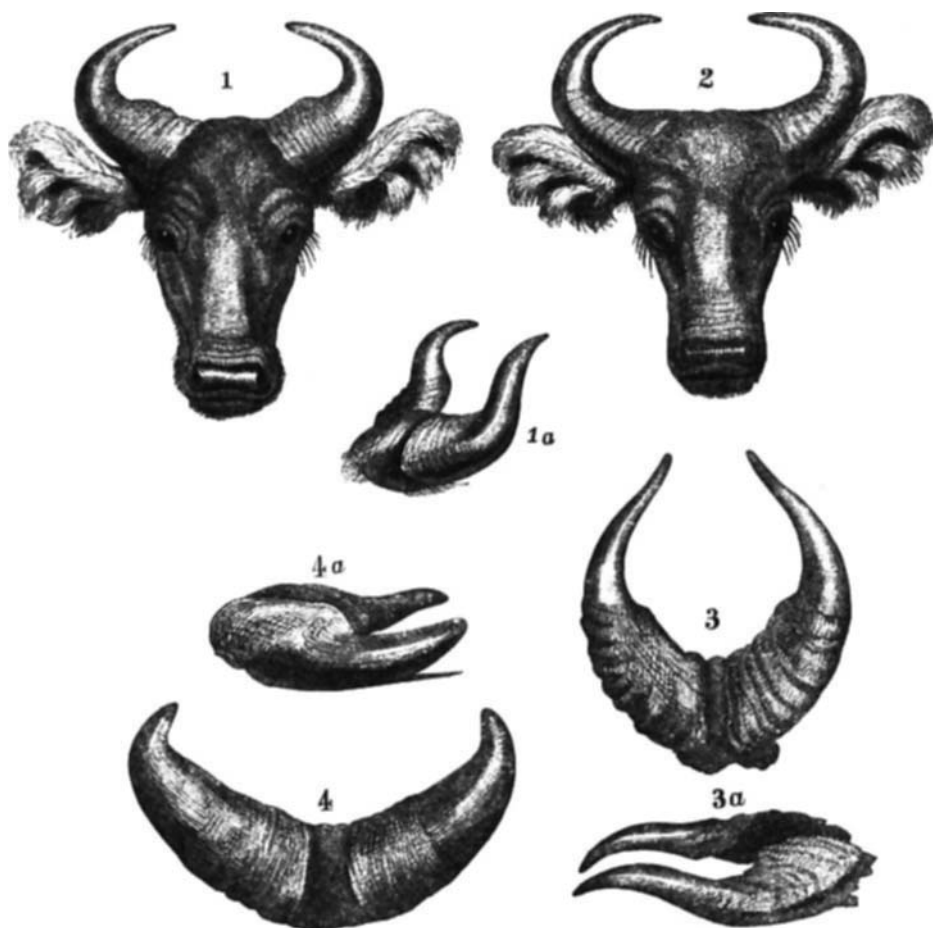
Another frontlet, indicative of an undescribed species of presumably African Buffalo (indeed, stated to be from South Africa, which must now be considered doubtful) had long been in the Collection of the British Museum, where it is assigned in Dr. Gray's Catalogue of the Mammalia in that collection to *B. caffer*, juv.†; but it has the indisputable characters of maturity, and is very unlike the young of *B. caffer* of either sex, with the development of the horns of which species Mr. Blyth was acquainted from personal observation in the case of the living male. This second species he proposed to designate *B. reclinis*.

The figures exhibited (see woodcuts, next page), drawn on a scale of an inch to a foot (English measure), would impart a better idea than any description of the horns of *Bubalus brachyceros*, Gray, *B. reclinis*, and *B. planiceros*.

The two heads of *B. brachyceros* have been drawn from a pair of specimens in the National Collection, brought to England by the celebrated traveller Capt. Clapperton, from Bornou; the faces and ears having been rectified from a living cow formerly in the Surrey Zoological Gardens, upon which Dr. Gray had founded the species.

* 'Catalogue of the Contents of the Museum of the Royal College of Surgeons, London,' pt. 3. p. 156, No. 1079. "The frontlet and horns of the Gayal."

† It is figured in the 'Catalogue of the Specimens of Mammalia in the Collection of the British Museum' (1852), pt. 3. *Ungulata fuscipeda*, tab. 2. fig. 3. "Pennant's specimen." Vide Grew, *Rar.* 26; Pennant's *Syn.* Br. Mus. Catal. (1862), p. 227, *Bubalus caffer*, "a. Frontal bone and horns; young."



Figs. 1, 1 *a*, and 2 represent the sexes of *B. brachyceros*; figs. 3 and 3 *a*, the *B. reclinis*; and figs. 4 and 4 *a*, the *B. planiceros*.

May 12, 1863.

E. W. H. Holdsworth, Esq., F.Z.S., in the Chair.

A communication was read from Messrs. Joshua Alder and Albany Hancock, F.Z.S., entitled "Notice of a collection of Nudibranchiate

Mollusca made in India by Walter Elliot, Esq., with descriptions of several new genera and species”*.

Mr. Leadbeater exhibited some castings thrown up by a species of Bee-eater (*Merops persicus*), similar to those usually produced by the King-fishers (*Alcedinidæ*).

Mr. Holdsworth exhibited living examples of *Lissotriton palmatus* obtained by himself from a new locality near Hereford, and made some remarks on this and three other species of Newts of which living examples were contained in the Society’s Collection.

Mr. Blyth exhibited and made remarks on some specimens of two Rollers (*Coracias indica* and *C. affinis*), and of some intermediate varieties between these two species.

Mr. Louis Fraser laid before the Meeting the following list of Birds which had been captured or observed in the Society’s Gardens in the Regent’s Park, for the most part by Mr. E. Bartlett, son of the Superintendent, a very promising young naturalist :—

Kestrel	<i>Tinnunculus alaudarius</i> , Briss.
Barn-Owl	<i>Strix flammea</i> , Linn.
*Spotted Flycatcher	<i>Muscicapa grisola</i> , Linn.
Missel-Thrush	<i>Turdus viscivorus</i> , Linn.
Fieldfare	— <i>pilaris</i> , Linn.
*Song-Thrush	— <i>musicus</i> , Linn.
Redwing	— <i>iliacus</i> , Linn.
*Blackbird	— <i>merula</i> , Linn.
Ring-Ouzel	— <i>torquatus</i> , Linn.
*Hedge Accentor	<i>Accentor modularis</i> .
*Redbreast	<i>Erithacus rubecula</i> (Lath.).
Wheat-ear	<i>Saxicola ænanthe</i> , Bechst.
*Reed Warbler	<i>Calamoherpe palustris</i> , Gould.
Sedge Warbler	<i>Calamodyta phragmitis</i> , Selby.
Nightingale	<i>Philomela lusciniæ</i> (Linn.).
*Blackcap	<i>Sylvia atricapilla</i> , Bechst.
Garden Warbler	— <i>hortensis</i> (Gmel.).
Common Whitethroat	— <i>cinerea</i> , Bechst.
Lesser Whitethroat	— <i>garrula</i> , Bechst.
Wood Warbler	<i>Phyllopneuste sibilatrix</i> , Bechst.
Willow Warbler	— <i>trochilus</i> , Gmel.
Chiff-chaff	— <i>rufa</i> , Lath.
Golden-crested Regulus	<i>Regulus vulgaris</i> , Cuv.
Great Tit	<i>Parus major</i> , Linn.
Blue Tit	— <i>cæruleus</i> , Linn.
Cole Tit	— <i>ater</i> , Linn.
Marsh Tit	— <i>palustris</i> , Linn.
Long-tailed Tit	— <i>caudatus</i> , Linn.
Pied Wagtail	<i>Motacilla yarrellii</i> , Gould.

* This paper will be published in the Society’s ‘Transactions,’ accompanied by six plates.

Grey Wagtail	<i>Motacilla boarula</i> , Lath.
Ray's Wagtail	— <i>rayi</i> .
Tree Pipit	<i>Anthus arboreus</i> , Bechst.
Meadow Pipit	— <i>pratensis</i> (Linn.).
Skylark	<i>Alauda arvensis</i> , Linn.
Common Bunting	<i>Emberiza miliaria</i> , Linn.
Chaffinch	<i>Fringilla coelebs</i> , Linn.
House Sparrow	<i>Passer domesticus</i> (Linn.).
Greenfinch	<i>Ligurinus chloris</i> (Linn.).
Hawfinch	<i>Coccothraustes vulgaris</i> , Briss.
Goldfinch	<i>Carduelis elegans</i> , Steph.
Common Linnet	<i>Egiothus linarius</i> (Linn.).
Lesser Redpole	— <i>minor</i> (Ray).
Bullfinch	<i>Pyrrhula vulgaris</i> , Briss.
Starling	<i>Sturnus vulgaris</i> , Linn.
Carrion Crow	<i>Corvus corone</i> , Linn.
Rook	— <i>frugilegus</i> , Linn.
Jackdaw	— <i>monedula</i> , Linn.
Great Spotted Woodpecker....	<i>Picus major</i> , Linn.
Common Creeper.....	<i>Certhia familiaris</i> , Linn.
Wren	<i>Troglodytes parvulus</i> .
*Swallow	<i>Hirundo rustica</i> , Linn.
Martin	— <i>urbica</i> , Linn.
Swift	<i>Cypselus murarius</i> , Temm.
Nightjar	<i>Caprimulgus europæus</i> , Linn.
Wild Duck	<i>Anas boschas</i> , Linn.
Moorhen	<i>Gallinula chloropus</i> (Linn.).
Coot	<i>Fulica atra</i> , Linn.

The species marked thus * had been observed to breed in the Society's Gardens.

The following papers were read :—

1. ON THE MAMMALS AND BIRDS COLLECTED IN MADAGASCAR
BY DR. CHARLES MELLER. BY P. L. SCLATER, M.A.,
PH.D., F.R.S., SECRETARY TO THE SOCIETY.

Dr. Charles Meller, who went up with the Mission from Mauritius to Antananarivo† last year, as Medical Attendant, collected about seventy skins of Mammals and Birds on the road between Tamatave and the capital. At the suggestion of our Corresponding Member Mr. Edward Newton, Dr. Meller has since forwarded these to me, along with botanical specimens sent to the herbarium at Kew. I have therefore done my best to determine the species in this collection; and, with the assistance of Dr. Hartlaub's book on the 'Birds of Madagascar' and Mr. Alfred Newton's personal aid, I believe I have performed this with tolerable exactitude.

Paper labels were attached to most of the specimens. The information contained on these I have given as far as the words were legible.

† See Linnean Society's Journal, Bot. vol. vii. p. 57, for an account of this expedition.

The collection only embraces two species of Mammals, namely:—

1. *HAPALOLEMUR GRISEUS* (G. St. Hilaire).

Lemur griseus, G. St. Hil.—*Lepilemur griseus*, Is. Geoff. St. Hil. Cat. des Prim. p. 75.—*Chirogaleus griseus*, Giebel, Säug. p. 1018.

Mr. Meller's collection contains two examples of a *Lemur*, which I refer to this species, from the "Bamboo-forests near Alamazaotra." They are an adult female and a young one, taken at the same time. There is no doubt about this animal belonging to the genus called *Hapalemur* by Geoffroy St. Hilaire, the peculiarities of its dentition and short hairy ears rendering it easily recognizable. As regards coloration, it appears to agree best with St. Hilaire's new species *Hapalemur olivaceus*; but whether this be in reality anything more than a variety of *H. griseus* seems doubtful. Without comparison of specimens it would be impossible to pronounce upon this subject; and I am not aware that there are any examples of these animals in the country, this form of *Lemuridæ* being at present unrepresented even on the well-stored shelves of our national collection.

Dr. Meller's adult female example measures, along the back, about $14\frac{1}{2}$ inches from the snout to the root of the tail; the tail is 15 inches in length. The fur is of a greyish mouse-colour, finely striated throughout, overspread with yellowish rufous on the upper parts, particularly on the crown of the head and back; below paler, nearly pure pale cinereous, with the belly and inner sides of the limbs somewhat ochraceous. The younger individual is scarcely different, except in being rather more yellowish below.

2. *CENTETES ECAUDATUS* (Schreb.).

Native name, *Tandrack*. Obtained at Beforona.

Rather darker and smaller in size than most of the specimens in the British Museum (which are from Mauritius), but hardly otherwise different. Mr. Flower, who has kindly compared the skull of this specimen with others of *Centetes* in the collection of the Royal College of Surgeons, informs me that it only differs in being smaller. The importation of this animal into Mauritius, if this has really taken place, as is generally stated, may have resulted in an increase of size and variation into a paler coloration.

The birds in Dr. Meller's collection are of forty species, nearly the whole of which are correctly registered in Dr. Hartlaub's work. They are as follows:—

AVES.

1. *TINNUNCULUS NEWTONI*, Gurney, Ibis, 1863, p. 34, pl. 2.—*Tinn. punctatus*, ex Madagascar, Hartl. l. c. p. 18.

Two examples from Nossibey and River Hivondro.

2. *POLYBOROIDES RADIATUS* (Scop.), Hartl. l. c. p. 21.

Native name, "*Vorondoui*." Obtained "July 1862, near the river at Beforona."

PROC. ZOOLOG. SOC.—1863, No. XI.

All the names of the older authors often applied to the continental form of this bird belong in strictness to this Madagascar species. The synonymy of the two birds should stand as follows:—

(1.) *POLYBOROIDES RADIATUS*. (*Supra pallidior : fasciis abdominis latioribus.*)

L'Autour à ventre rayé de Madagascar, Sonn. Voy. pl. 103.

Falco radiatus, Scop. Del. pt. 2. p. 85.

Falco madagascariensis, Daud. Tr. d'Orn. ii. p. 78.

Falco gymnogenys, Temm. Pl. Col. 307.

Sparvius madagascariensis, Vieill. Nouv. Dict. x. p. 339.

Polyboroides radiatus, Hartl. l. c. p. 21, et Enc. Méth. p. 1271.

Polyboroides madagascariensis, A. & E. Newt. Ibis, 1862, p. 268.

Gymnogenys malzacii, Verr. Rev. et Mag. de Zool. 1855, p. 348.

Hab. In Madagascariensi ins.

(2.) *POLYBOROIDES TYPICUS*. (*Supra magis obscurus : fasciis abdominis angustioribus.*)

Polyboroides typicus, Smith, S. Afr. Quart. Journ. i. p. 107 ; Rüpp. Syst. Ueb. p. 12.

Polyboroides capensis, Smith, S. Afr. Journ.

Polyboroides radiatus, Gurney, Ibis, 1860, p. 237 ; 1862, p. 35.

Hab. In Africa universâ præter Septentr.

3. *MILVUS PARASITICUS* (Daud.), Hartl. l. c. p. 19.

Native name, *Perorova*. "Iris bright sienna, and light brown dirty feet." Seen from Tamatave to Fenerive.

4. *OTUS MADAGASCARIENSIS*, A. Smith, S. Afr. Quart. Journ. ii. p. 316 ; Hartl. l. c. p. 23.

Obtained in August 1862, at Vavony. "Iris black."

5. *STRIX FLAMMEA*, Linn. ; Hartl. l. c. p. 24.

Native name, *Para*. "Lives in the rocks of Antananarivo : comes out about 4 P.M."

6. *CORYTHORNIS VINTSIOIDES* (Lafr.), Hartl. l. c. p. 31.

Native name, *Vinshi* ; frequents the lakes, rivers, &c.

7. *NECTARINIA ANGLADIANA*, Shaw ; Hartl. l. c. p. 52.

Native name, *Sushné*.

8. *NECTARINIA SOUIMANGA* (Gm.), Hartl. l. c. p. 34.

"Iris pink : found both in the forests and on the plains."

9. *DRYMÆCA MADAGASCARIENSIS*, Hartl. l. c. p. 53.

"Iris brown : found on the plains."

10. *ELLISIA TYPICA*, Hartl. l. c. p. 37.

"*Amanzarik* : iris brown."

11. *PRATINCOLA SIBYLLA* (Linn.), Hartl. *l. c.* p. 38.

Several examples of this apparently common Madagascar bird from the "valleys and hills to within twenty miles of Antananarivo."
"Iris dark brown."

12. *GERVAISIA ALBOSPECULARIS* (Eyd. & Gerv.), Hartl. *l. c.* p. 39.

One example, without label attached.

13. *MOTACILLA FLAVIVENTRIS*, J. Verr. ; Hartl. *l. c.* p. 39.

"Wagtail ; native name, *Skulula* : obtained at Andovorant, 27th Aug. 1862. Iris pink sienna."

14. *ZOSTEROPS MADAGASCARIENSIS* (Linn.), Hartl. *l. c.* p. 40.

"Native name, *Shei*. Iris pinkish brown : from the forests."

15. *HYPsipETES OUROVANG* (Gm.), Hartl. *l. c.* p. 44.

"Native name, *Vorova* : iris dark brown : common on the road from Andovorant to Mandrahody."

16. *TCHITREA MUTATA*, (L.), Pl. Enl. 248. fig. 2 ; Hartl. *l. c.* p. 45.

"Native name, *Sicatrit* : found by the streams : iris brown."

17. *TCHITREA* — ?

"Native name, *Selangani* : iris sienna : obtained at Beforona, 31st July, 1862."

Probably the chestnut form of the preceding.

18. *DICRURUS FORFICATUS* (Linn.), Hartl. *l. c.* p. 49.

Two examples. Native name, *Drongne* : iris pinkish brown : obtained in the plains by the village of Andranakoditra, but "common all along the road."

19. *VANGA CURVIROSTRIS* (Linn.), Hartl. *l. c.* p. 51.

"Native name, *Vorombanga* : iris light brown : from the beach at Andovorant."

Mr. F. Plant, who is now collecting objects of natural history in Madagascar, has lately transmitted to Mr. Stevens a nest and two eggs of this bird. The nest is an open cup-shaped structure, composed of small sticks, roots, and fibres, lined with rather finer materials of the same description. The interior is about $2\frac{1}{2}$ inches in diameter, the whole mass measuring 7 inches in diameter. The eggs are white, spotted with two shades of red, and measure 1·2 by 0·8 inch.

20. *HARTLAUBIA MADAGASCARIENSIS* (Linn.), Hartl. *l. c.* p. 52.

Native name, *Fetat* : iris dark brown : Andovorant.

21. *SPERMESTES NANA*, Puch. ; Hartl. *l. c.* p. 56.

Three examples without labels.

22. *MIRAFRA HOVA*, Hartl. *l. c.* p. 57.

Native name, *Suréte*, or *Shurete*: found in the plains; a fast-running Lark. Two examples, obtained at Ambatananga and Maromango. "Iris pinkish sienna."

23. *CORACOPSIS VASA*, Bp.; Hartl. *l. c.* p. 58.

Native name, *Boisa*: obtained at Beforona and Analamazotra.

24. *CORACOPSIS NIGRA* (Linn.), Hartl. *l. c.* p. 58.

Iris dark brown: from Andovorant: native name, *Boisa*.

25. *CENTROPUS TOLU* (Linn.), Hartl. p. 60.

Four examples of this apparently common bird, from between Hivondro and the capital, obtained in July and August. Native name, *Tooloohoo*: iris sienna-brown.

26. *COUA CÆRULEA*, Linn.; Hartl. *l. c.* p. 60.

Two examples. Native name, *Tesin*, or *Tisin*: one from the "woods near Beforona," and the other "from the woods of Analamazotra: iris in each example marked "dark brown."

27. *FUNINGUS MADAGASCARIENSIS* (Linn.), Hartl. *l. c.* p. 64.

Native name, *Founi*: iris pink, caruncle pink: from the "hills by Beforona," and from the woods by Analamazotra.

28. *VINAGO AUSTRALIS* (Linn.), Hartl. *l. c.* p. 65.

Native name, *Vounenigo*, or *Founi*: iris pink: from the hills by Ranomaton (July 29, 1862).

29. *TURTUR PICTURATUS* (Temm.), Hartl. *l. c.* p. 66.

One example without label.

30. *MARGAROPERDIX STRIATA* (Gm.), Hartl. *l. c.* p. 70.

Native name, *Trou-trou*: iris dark brown; legs dark brown: found in the "grassy hills; flight low and short."

31. *CHARADRIUS TENELLUS*, Hartl. *l. c.* p. 72.

One example, not in good state, obtained on the beach: "iris light brown."

32. *ARDEA ATRICAPILLA* (Afz.), Hartl. *l. c.* p. 75.

One example without label.

33. *ARDEA BUBULCUS*, Sav.; Hartl. *l. c.* p. 74.

Native name, *Vorompotsi*, or *Vorompootsa*: iris bright yellow: obtained at Andovorant, 26th July, 1862.

34. *SCOPUS UMBRETTA* (Linn.), Hartl. *l. c.* p. 76.

Obtained in the paddy-fields at Moromanga: iris brown.

35. ROUGETIUS BERNIERI, Bp.; Hartl. *l. c.* p. 80.

"Waterhen: native name, *Skosa*: shot in the highest part of the wood near Analamazotra. Iris pink."

36. PORPHYRIO MADAGASCARIENSIS (Gm.), Hartl. *l. c.* p. 81.

"Green Waterhen, from Lake Hivondro."

37. GALLINULA PYRRHORHOA, Newton, P. Z. S. 1861, p. 19.—*G. chloropus*, Hartl. *l. c.* p. 81.

One example without label.

38. NETTAPUS AURITUS (Bodd.), Hartl. *l. c.* p. 82.

Several examples of this little Goose, from Lake Hivondro. "Iris brown."

39. DAFILA ERYTHORHYNCHA (Gm.), Hartl. *l. c.* p. 82.

Two examples from the marshes near Analamazotra: iris sienna-brown. Native name, *Harki*.

40. PODICEPS PELZELNI, Hartl. *l. c.* p. 83.

"*Voron-kohi*: iris dark brown: from the marshes and rivulets by Beforona."

2. CHARACTERS OF A NEW SPECIES OF SEDGE WARBLER FROM MADAGASCAR. BY DR. G. HARTLAUB.

CALAMOHERPE NEWTONI, nov.

♂. *Supra obscurius olivacea, subunicolor, subtus multo pallidior, medio subflavicans; mento gulaque albidis; jugulo maculis longitudinalibus fuscis conspicue notato; subalaribus flavo-albidis; subcaudalibus obscuris; maxilla fusca, mandibula obscure aurantiaco-rubente; ore interno late aurantiaco; iride helvola; ala brevi; cauda longa, rotundata, rectricibus angustatis, apice rotundato-attenuatis.*

Long. $6\frac{1}{3}$ " ; rostr. a. fr. $6\frac{1}{4}$ " ; rostr. a. rict. 9" ; al. 2" 7" ; caud. 3" ; tars. 11" .

Two male specimens of this unquestionably new species were collected by Mr. Edw. Newton near Soamandrikazay, in the island of Madagascar.

3. ON SOME INSECTS COLLECTED IN MADAGASCAR BY MR. J. CALDWELL. BY F. WALKER, ESQ.

The insect-fauna of Madagascar is to a great extent almost unknown; but enough has been ascertained to show that it contains several peculiar forms, though some of its species are identical with those of South Africa, and others with those of Hindostan. Various

Coleoptera have been discovered and described by French naturalists; and Boisduval, in his 'Faune Entomologique de Madagascar, Bourbon et Maurice,' has characterized the more conspicuous Lepidoptera; Bigot has described several Diptera; and Coquerel has ascertained the habits of a few species of other insect classes. While expecting the arrival of large collections of insects from this island, I have availed myself of the kindness of Dr. Selater to give a brief notice of some species collected by J. Caldwell, Esq., near Antananarivo, the capital of Madagascar.

COLEOPTERA.

CYBISTER. Two or three species of this genus.

POLYBOTHRIUS AUROPICTA.

This is one of the species of *Buprestidae*, with dilated elytra, which are peculiar to Madagascar.

APODERUS. A large and handsome species.

ORTHOPTERA.

ACHETA. One species.

ÆDIPODA. One species.

PHYMATIUS MORBILLOUS.

MANTIS. One species.

NEUROPTERA.

ÆSCHNA. One species.

LIBELLULA. Two species.

HYMENOPTERA.

XYLOCOPA ÆSTUANS.

This also inhabits Hindustan and the islands of Sumatra, Celebes, and Aru.

HEMIPTERA.

LYGÆUS CONSENTANEUS, n. s.

DIPLONYCHUS. One species.

NOTONECTA. One species.

BELOSTOMA. One species.

LEPIDOPTERA.

ACHERONTIA ATROPOS.

Madagascar and the two neighbouring isles seem to be the central habitation of this species, whence it extends on the one hand along the coasts of Africa and of West Asia and through Europe, and on

the other hand to Hindostan, China, Java, and the Philippine Isles. Of the other two supposed species of this genus, *A. styx* (called also *A. medusa*) seems to be an Asiatic form of *A. atropos*; and the latter can hardly be considered as originally distinct from the third species, which inhabits Hindostan, Ceylon, China, and Java, and has received the names of *mortis*, *satanas*, *lethe*, and *circe*. The introduction of *A. atropos* into England may be a consequence of the warmer period which ensued after the glacial epoch, and during which the southern forms of life migrated northward. This period is indicated slightly in the present time, when a hot summer in England is accompanied by the appearance of some South European insects.

EUCHROMIA FOLLETTII, Guér.

BIZONE AMATURA, n. s.

The genus *Bizone* has been hitherto only discovered in Asia and in some of the Eastern Islands.

ARTAXA FERVIDA, n. s.

EUPROCTIS PRODUCTA, n. s.

TRIGONODES HIPPIASIA.

Inhabits also Ceylon and Hindostan.

ARACHNIDA.

GASTERACANTHUS. One species.

The new species indicated above may be described as follows:—

LYGÆUS CONSENTANEUS.

Coccineus; proboscide, antennis, pedibus, prothoracis punctis duobus, mesothorace, metathorace, abdominis maculis lateralibus maculaque apicali, necnon alarum anticarum lineola costali, puncto discali membranaque nigris; alis posticis nigricanti-cinereis, venis nigris, ad basin rufis.

Bright red; proboscis, antennæ, and legs black; prothorax with two black points in a transverse line on the disk; mesothorax and metathorax black: abdomen with black dots along each side; apical spot black, largest on the underside: fore wings with a short black costal line and a black discal point, membranous part black: hind wings blackish cinereous; veins black, red towards the base. Length of the body 6 lines, of the wings 12 lines.

BIZONE AMATURA.

Fœm. Alba, palpis antennisque roseis, pedibus roseo variis; alis anticis linea exteriore subinterrupta, strigis quatuor costalibus maculisque septem marginalibus roseis, alis posticis guttis marginalibus roseis minus determinatis.

Female. White; palpi and antennæ rosy; fore legs rosy; middle tibiæ with two rosy bands; posterior tarsi rosy; fore wings with an

exterior transverse, slightly interrupted, rosy line, with four rosy streaks along the costa, and with seven rosy spots along the exterior border; hind wings with less distinct rosy dots along the exterior border. Length of the body $4\frac{1}{2}$ lines, of the wings 11 lines.

ARTAXA FERVIDA.

Mas. Ochracea, capite thoraceque hirsutis; alis anticis lineis duabus transversis undulatis albidis, secunda extus ochraceo saturatiore marginata.

Male. Ochraceous; head and thorax with erect hairs; fore legs very densely pilose; anterior tibiæ fringed towards the base; fore wings with two irregular undulating transverse whitish lines, second line bordered irregularly with darker ochraceous on the outer side. Length of the body 5 lines, of the wings 14 lines.

EUPROCTIS PRODUCTA.

Mas. Nivea, abdominis fasciculo apicali ochraceo; alis anticis elongatis, apice rotundatis.

Male. Pure white; abdomen with a bright ochraceous apical tuft; fore wings elongated, rounded at the tips; costa and exterior border hardly convex, the latter very oblique. Length of the body 8 lines, of the wings 20 lines.

The ochraceous apical tuft of this species distinguishes it from *E. divisa*.

4. ON A NEW SPECIES OF CALLISTE FROM COSTA RICA.

BY OSBERT SALVIN, M.A., F.Z.S.

CALLISTE DOWII, sp. nov.

Supra nigra: dorso vix viridi lavato, plumis nuchæ et laterum colli utrinque argentescente viridi terminatis, pilei margine postico ochracescente marginato: uropygio argentescente viridi, tectricibus superioribus rectricum cyaneis: subtus gula tota nigra: pectore superiore nigro, plumis viridescenti-cinnamomeo terminatis: ventre imo cum crisso et lateribus cinnamomeis, pectore inferiore paulo dilutiore: primariis usque ad terminos, secundariis, tectricibus alarum et rectricibus omnino nigris, pogoniis externis omnium cyaneo marginatis, tectricibus subalaribus albis, vix cinnamomeis; campterio cyaneo, albo vittato: rostro nigro, mandibulæ inferioris basi albida: pedibus fluvo-nigris.

Long. tot. 5·25, alæ 2·9, caudæ 2, tarsi ·75, poll. angl.

Hab. Costa Rica.

This is a very distinct species, and unlike any of the genus. The greenish-silvery feathers of the neck and the green uropygium suggest the group which Dr. Scater unites under the head of *Procnopis*, as its proper position in the genus, its nearest ally being the New Granadian *C. nigriviridis*, from which, however, it differs essentially.



J. Wolf, del. et lith.

M. & N. Hanhart, imp.

OREAS DERBIANUS.

This makes six species of *Calliste* now known to inhabit Central America and the Isthmus of Panama, viz. *C. larvata* from the hot forest-region of the Atlantic side of Guatemala, *C. francescæ** from Costa Rica and Veragua, *C. dowii* from Costa Rica, *C. frantzii* from the same country, *C. gyroloides*, a species ranging from Costa Rica to Bolivia, and *C. inornata* from Panama to the Isthmus of Darien.

The single specimen of this *Calliste* now described was procured by Capt. J. M. Dow, Corr. Mem. Z.S., at San José, the capital of Costa Rica, during a short visit he paid to that city in the early part of the present year, and by him most kindly presented to me. He was unable to inform me exactly whence it came; but it was most probably obtained from the low forest-region of the Atlantic slope.

I dedicate the species to Capt. Dow, whose researches in the marine fauna of Central America are too well known for me to need to dilate upon the justice of the appellation.

5. NOTES ON THE DERBYAN ELAND, THE AFRICAN ELEPHANT, AND THE GORILLA. BY W. WINWOOD READE, F.S.A.L.

(Plate XXII.)

1. THE DERBYAN ELAND (*Oreus derbianus*, Gray).

When I was on the Casamanza, a river of Senegambia, in December 1862, I was informed of the existence of an enormous Antelope, double the size of the Senegal Bullock, with horns lying backwards, a black mane, and white stripes on its sides. My French host informed me that it was unknown in France, which is quite true, as, in fact, its very existence has been denied by French naturalists. I asked where this animal was most abundant, and was told in the bamboo-forest of Bambunda, about fifty miles north-east of Sedhu, where I was staying. I immediately rode over to a village called Missera, situated on the borders of the forest, taking a rifle with me. The hunters of that village told me that at that time it would be impossible to kill the *Djik-i-junka*, the bush being dark, as they expressed it; but that in a few weeks they would burn the tangled undergrowth of the forest and the high grass of the plains, according to their annual custom. They would then have a *battue*; hundreds of people would collect, and animated nature, towards the close of the day, would be driven into a large plain. There Antelopes, Gazelles, Wild Boars, Porcupines, &c., would be found so exhausted that many of them could be killed with sticks; and indeed only a limited number

* I had considerable doubts whether this species was really separable from *C. larvata*, but, having examined a number of skins of both species, have come to the conclusion that the distinction, small as it is, is constant. Dr. Selater has pointed out in his 'Monograph' what the differences are, to which I may add that *C. francescæ* seems a lighter rather than a brighter bird than *C. larvata*; the blue on the forehead is a trifle broader in the former; and the outer bluish-green margin to the middle wing-coverts of the latter is almost obsolete in the former. In fact, there is just a difference, and that is all.

of guns were allowed in case of accidents. Accordingly I made an arrangement with them that the first specimen they killed should be sent to Sedhu, where my friend M. Rapet would buy it for me, and send it on. Thus I obtained one specimen; the others I purchased at Macarthy's Island, Gambia.

I made inquiries of these hunters of Nussera as to the habits of the Derbyan Eland. They told me that the forest was its home; that it never of its own accord entered the plains; that it never grazed, but that the bull would tear down branches of trees for the does and fawns to feed upon.

A fawn, destined for le Jardin des Plantes, was once sent by M. Rapet from the Casamanza, but it died at Goree. When I was at Macarthy's Island, I saw a fawn of this Antelope which was in the possession of an officer of the 2nd West Indian Regiment; it was extremely tame, allowing itself to be caressed, and was so young that it used to be fed on milk.

2. THE AFRICAN ELEPHANT (*Elephas africanus*).

The most wonderful sight which I saw in Africa (at least in a zoological point of view) was an Elephant-nghâl, or enclosure. I had just returned to the Gaboon settlements after a trip among the Fans, when I heard that a hunting-party of these cannibals had enclosed three Elephants in a nghâl, or fence. I immediately went off in my canoe, and slept that night at a village within a few miles of the place. I walked over there the next morning. About twenty acres of ground had been enclosed by what is called, in hunting parlance, posts and railings. Round this fence at intervals were the huts of the hunters. After I had paid the usual compliments to the chief, and also the price of my admission to the menagerie with a few strings of white beads, I said that I should like to see the Elephants. The chief answered that the Elephants were asleep under a large tree, which he pointed out to me. I wanted to crawl in and have a look at them; but they would not let me do that, fearing that a white face would frighten the Elephants away, in which case (so my interpreters informed me) I should be kept prisoner till I had paid the value of the meat and the ivory. But they told me to have patience; for the Elephants would wake up in the afternoon. Presently a number of young men came running round, and took me to a place where I could see one of the Elephants, a fine tusker, about 100 yards off. He was swinging himself on three legs and feeding, sometimes helping himself to the leaves of the tree with his trunk.

I asked how the Elephants were got into this fence and kept there. The Fans replied that, having found that three Elephants frequented that part of the forest (for these animals are not found in large herds here as in South Africa), they had built the fence—which certainly must have occupied them a considerable time. They left a gap (which they had not even closed up, for they showed it me), and their medicine-man made fetish for them to come in; they came in; then he made fetish for them to stay, and they stayed. When the new moon appeared, *i. e.* in about a fortnight's time, they would kill

them; and then he would make fetish that they should not be angry.

Now, if I had read this in a book, I should have disbelieved it. The Elephant, which is so intelligent, to be decoyed into so palpable a trap! the Elephant, which is so sensitive of the approach of man, to remain for days and days surrounded by the hubbub of a negroes' camp! what can appear more absurd?

But as the Elephant was there before my eyes, I was under the painful necessity of believing a thing which I did not understand, which of course I found very humiliating. A little while afterwards a man came round singing and dabbing the fence with a piece of rag soaked in a dark brown liquid. The Fans then told me that they made fetish every day, and that this fetish would be spoilt if a white man was present. I took this delicate hint and went away. Now I think that I can offer an explanation of this, which, if not perfectly satisfactory, is not unreasonable. The doctors, or fetish-men, as we call them, of the negroes have certainly an intimate knowledge of herbs. Possibly, by observing the habits of Elephants, they have found out some herb with which they can entice them where they please. This would be the fetish which made them come in. They would probably use another herb, which the Elephants disliked, to prevent them going out; and perhaps this was the dark brown liquid which they sprinkled on the fence. Finally, they might scatter stupifying herbs among their food; and this would be the fetish which prevented them from being angry whilst they were being killed. This surmise was afterwards partly indorsed, when I was in Angola, by a runaway slave from the unvisited kingdom of Matiamvo, who told me that they always poisoned the Elephants there before attempting to kill them. Before the Elephants in question were killed, all the undergrowth was cut down, part of which I saw had already been done; and they were killed with cross-bows, spears, and trade-guns.

3. THE GORILLA APE (*Troglodytes gorilla*).

I will now speak of that *Troglodytes prodigiosus*, the Gorilla.

In the first place, the name itself is a blunder. The *Gorillæ* of Hanno were found, it is supposed, on Sherbro Island; they scaled rocks, and they defended themselves with stones. These could neither have been Gorillas nor Chimpanzees, but a species of *Cynocephalus*, or kind of Baboon, commonly called the Dog-faced Monkey. These animals, which I have seen often enough in Senegambia, go in troops, which Gorillas do not, and actually defend themselves with stones,—a fact which I assert not only on the evidence of natives, but on the evidence of white men who have kept them in a state of captivity. They are also very ferocious, and will always defend themselves when attacked either by man or by beast.

I spent five months in the Gorilla country, and did not leave that part of Africa till I had completely satisfied myself respecting the habits of this animal. The evidence which I now lay before you is composed of statements made to me by men who had killed Gorillas. It is collected from three distinct parts of Equatorial Africa, viz.

from the Balengi of the Muni River, from the Shekani and Fans of the Gaboon, and from the Commi, Bakeli, &c., of the Fernand Vaz. But from the last river, where Gorillas are most plentiful, I obtained most information.

The Gorilla is found in those thick and solitary places of the forest where animal life is scarce. His food is strictly vegetable. He moves along the ground on all fours; sometimes he goes up into the trees to feed on fruit, and at night he sleeps in a large tree. When the female is pregnant, the male builds a nest, where she is confined, and which she abandons as soon as her young one is born.

The Gorilla does not beat its breast like a drum. It utters a kind of short, sharp bark when enraged, and its ordinary cry is of a plaintive nature.

With respect to its ferocity, the hunters have a proverb, "Leave a *Ngina* alone, and it will leave you alone." When it is at bay and wounded, it will attack man, like the Stag, the Elephant, and other animals naturally timid. But it makes this attack on all fours; the hunters, who are themselves as nimble as apes, often escape from it as men escape from the charge of an Elephant. I have seen a man who had been wounded by a Gorilla; his wrist was crippled, and the marks of the teeth were visible. He told me that the Gorilla seized his wrist and dragged it into his mouth; it was contented with having done this, and went off. The nearest approach to an erect posture which the Gorilla attains to is by supporting itself by holding on to the branches. When I asked the people of Ngumbi whether a man had ever been killed by a Gorilla, they said that their fathers had spoken of such a thing, but that nothing of the kind had happened within the memory of anybody living.

Such is the evidence of the native hunters upon the habits of the Gorilla. I could not find that it differed in any important respect from the Chimpanzee, except in its superior size and strength, and in its being certainly more formidable when wounded. But when I asked the hunters which was the more dangerous, the Leopard or the Gorilla, they replied, "The Leopard."

I can make one or two positive assertions from my own experience. Although I never succeeded in seeing a Gorilla in its wild state, I can assert that it travels on all fours; for I have seen the tracks of its four feet, over and over again. I can assert that it runs away from man, for I have been near enough to hear one running away from me; and I can assert that the young Gorilla is as docile as the young Chimpanzee in a state of captivity, for I have seen both of them in a state of captivity. I have also seen the lying-in nests both of Chimpanzees and Gorillas, the latter being a little the larger of the two. The Chimpanzee, I may observe, has the character of being more intelligent than his big brother.

Now, Gentlemen, I hope you will permit me to add a few words in vindication of my own personal character. Whether M. Du Chaillu has killed a Gorilla or not is not, I think, of much scientific moment when compared with his real merits as an explorer, as an author on the ethnology of Equatorial Africa, and as a collecting naturalist.

But I have brought an accusation against M. Du Chaillu, and I should deserve to be severely blamed if I had brought a charge against any man on light and insufficient grounds.

Not having been able to find out at the Gaboon whether M. Du Chaillu had killed a Gorilla or not, nobody having visited the interior of the Fernand Vaz since he left it, I determined to go there, and made a tedious voyage by open boat and canoe from Gaboon to Ngumbi. On arriving at this town, pretending of course to be a trader, almost the first question I was asked was whether I would buy Gorillas, as M. Du Chaillu did. I refused to buy them, but said that I would give a large reward to any hunter who would get me a shot at one, and also a present to the king. They seemed astonished at this, and asked me why I wished to do a thing which other white men had not wished to do.

Now I had taken with me two interpreters, and managed to make them quarrel, so that there might be no collusion in the matter. I examined Etia, a hunter in whose company M. Du Chaillu professes to have killed Gorillas, by each interpreter separately. I examined in the same manner the five guides who had escorted him into the Apingi country; and though they spoke of M. Du Chaillu in high terms, and appeared to have a great affection for him, they all replied that he had never shot a Gorilla.

If I sit among a jury, and a man is placed in the witness-box and gives his evidence clearly, if he does not change his statements under a severe cross-examination, I admit, of course, the *possibility* of perjury, but if I can imagine no reason why he should perjure himself, I am forced to give a verdict according to that evidence. Such a case is the one in point. I say that it is possible M. Du Chaillu has been belied by these men, but I cannot admit that it is probable. In any case I think you will allow that he has not been belied by me, and that any other man would have arrived at the same conclusion on receiving similar evidence.

6. OBSERVATIONS ON THE BOX TORTOISES, WITH THE DESCRIPTIONS OF THREE NEW ASIATIC SPECIES. BY DR. J. E. GRAY, F.R.S., ETC.

The knowledge of the animals of our own country is progressive and only gradually acquired; and how much more so must it be as regards the species which we receive from a distant country, whence we get only isolated specimens, and often in a more or less imperfect condition, without any account of how they live, and what they eat, and in what manner they conduct themselves!

In such cases how can we do more than guess at what is a species, and into what groups the species should be divided? and yet, because we doubt in what we are doing (and the older we become in the study, the more do we see the necessity for doubting, and the more do we see the imperfection of our materials)—yet, on the doubts which arise from such causes and not from any want of faith in the principle that species are permanent, if we only had materials enough

to study them properly, do theorists wish to support the theory that species gradually pass into each other, and have been derived, or rather have originated, from such transformations. Never was a theory more baseless, as far as our knowledge is concerned.

This imperfection of our knowledge is specially the case with respect to exotic Tortoises, where we sometimes only procure the shell, at other times the animal with the shell in a more or less perfect condition; and when the latter is procured, we find that the conclusions that we had come to as regards the probable form of the animal, or some part of it, are more or less incorrect, and we are thus obliged to reconsider the situation the species occupies in the series.

Having lately received some more perfect specimens of some of the Indian Box Tortoises, I am induced to suggest their arrangement as follows:—

The Tortoises belong to the tribe *Cistudina*, are characterized by having the sternum attached to the back by a ligamentous suture on each side, and being divided across the centre by a similar cross suture, leaving the front and hind lobe more or less moveable.

In the *normal Cistudinæ*, which have the lobes of the sternum moveable at all ages, the cartilaginous sutures and the suture between the pectoral and ventral shields of the sternum are at the same situation; and the lobes of the sternum are broad, as broad as the opening of the thorax, and cover the legs when they are contracted.

The *normal Cistudinæ* may be divided into genera, according to the more or less aquatic habits of the animal, as indicated by the structure of the feet.

- I. *Sternum-lobes unequal; front shorter, almost free from the symphysis. The hind foot slender, elongate; toes very unequal, second longest.* N. America.

1. CISTUDO.

Thorax convex, solid; sternum rounded or truncated before and behind; the front lobe smaller, almost free from the symphysis. The fore legs with large shields in front; the toes short, enclosed, not webbed, with short conical claws. The hind feet elongate, narrow, with the second toes produced; the rest short, nearly enclosed, not webbed; the soles of the feet with subequal moderate-sized scales, the hinder edge rounded.

N. America.

- * *The hind feet with small hinder or outer fourth toes.* Cistudo.

CISTUDO CAROLINA, Gray, Cat. Shield Rept. B.M. p. 39.

Of which *C. ornata* and *C. major*, Agassiz, seem to be varieties.

- ** *The hind feet without any small fourth toes.* Onychotria.

CISTUDO MEXICANA, Gray, Cat. l. c. p. 40.

See also *C. triunguis*, Agassiz, which is said to be smaller than *C. carolina* and *C. mexicana*.

Dr. Holbrook describes and figures *Cistudo blandingii* (t. 3) as a separate species, because it has a head like *Emys*, the upper jaw deeply emarginate in front, the front lobe of the sternum less elevated. On these characters Lecomte refers it to *Lutremys*, and Agassiz to *Emys*, as restricted by Bonaparte, who regards *E. europæa* as the type. The figures of Holbrook look very like *Cistudo carolina*; but Agassiz, who forms for it a subfamily, describes it as much more depressed. It is probably distinct; but I have never seen an American Box Tortoise that could be arranged or confounded, as Leconte has done this, with our European *Lutremys*. It certainly is not *E. meleagris* of Shaw, as Agassiz believes.

II. *Sternum-lobes subequal, both forming part of the lateral symphysis.* The Old World.

i. *Hind foot elongate; toes very unequal, nearly free, second longest.*

2. PYXIDEA.

The thorax convex, solid. Sternum flat; lobes rather narrow, truncated in front, notched behind. Legs with large band-like thin shields in front; toes short, scarcely exerted, with band-like shields above, slightly webbed. The hind feet rather elongate; toes slightly webbed, short; the second rather elongate, produced, with a large claw. Claws conical, acute.

PYXIDEA MOUHOTII.

Cyclemys mouhotii, Gray, Ann. & Mag. N. H. 1862, x. p. 157.

Hab. Lao Mountains, Siam.

The back is flattish and sharply three-keeled.

ii. *The hind foot elephantine; toes subequal.*

3. CISTOCLEMMYS.

Thorax convex, solid. Sternum nearly flat, rounded before and behind; the front lobe large, partly enclosed in the symphysis. The fore feet subclavate; the toes very short, nearly enclosed, not webbed; the claws short, blunt. The hind feet elephantine, subcircular; toes very short, enclosed. Soles with two series of large prominent shields; the hinder edge keeled, but scarcely produced. Tail shielded beneath. Asiatic.

This genus, in the convex and solid structure of the thorax, is like *Cistudo*; but the foot is more like that of the Land-Tortoises; and the hind foot is subcylindrical, instead of elongate as in the American genus.

CISTOCLEMMYS FLAVOMARGINATA.

Dark brown, shields of the back deeply concentrically grooved; the sternum flat, black; the lower side of the margin of the thorax yellow; head olive, temple yellow, with a yellow streak on each side of the crown, becoming wider and triangular behind.

Cuora trifasciata, var., Gray, Cat. Shield Reptiles in B.M. p. 42. Specimen c.

Hab. China (*J. Reeve, Esq.*) ; Formosa (*R. Swinhoe, Esq.*).

The surface of the shell is often more or less eroded ; the one which we first received from Mr. Reeve was so on the whole upper surface. The form of the foot, as well as the height and thickness of the shell, at once separates this species from *Cuora trifasciata*, with which I formerly confounded it.

Mr. Swinhoe informs me that this Tortoise is very abundant in the ponds in the district of Tamsuy, N.W. Formosa. He did not fall in with it in South Formosa, where the *Emys bennettii** is the prevailing species. He has frequently seen the Tamsuy Tortoise showing its head and the top of its back on the surface of the water in ponds about the rice-fields, and has watched them basking, several at a time, on the tops of large stones in such ponds.

iii. *The hind feet flattened, fringed ; toes webbed and with band-like shields above.*

4. CUORA.

The thorax rather convex, more or less three-ridged. The sternum flat ; lobes subequal, both enclosed in the symphysis. Head flat at top ; eyes lateral. The front of the fore legs with large scales. The toes all banded above, webbed. The claws conical. The hind feet depressed ; the hinder edge fringed and angularly produced. Asiatic.

* *The head large, flat, with two yellow streaks on each side ; back one-coloured ; toes broadly webbed.* Cuora.

CUORA AMBOINENSIS, Gray, Cat. Shield Reptiles B.M. p. 41.

Hab. Amboina ; Gilolo (*Wallace*) ; Borneo (*Wallace*).

** *Head smaller, oblong, with two dark streaks on each side ; back three-banded ; toes narrowly webbed.* Pyxiclemmys.

CUORA TRIFASCIATA, Gray, Cat. ~~Shield Rept.~~ B.M. p. 42.

Hab. China.

5. LUTREMYIS.

Thorax depressed. Sternum flat ; lobes subequal, both enclosed in the symphysis. Head ovate ; eyes superior. The legs with large scales in front. The feet depressed ; toes webbed, banded above ; the hind feet fringed and angularly produced behind. Claws elongate, acute.

LUTREMYIS EUROPÆA, Gray, Cat. Shield Reptiles B.M. p. 40.

Hab. Europe.

Very variable in colour.

* *Emys sinensis* proves to have been founded on the young state of this species, as is shown by the fine series of specimens brought from Formosa by Mr. Swinhoe.

- iv. *Toes webbed; they and legs covered with very small scales; front legs only with thin band-like plates in front; the lobes of the sternum narrow.*

6. NOTOCHELYS.

Back convex, flattened above. The sternum flexuous; lobes rather narrow, truncated in front and behind. The legs and toes covered with minute scales; the front legs having a series of broad, thin, band-like shields in front. Toes webbed. Claws acute.

This genus is like a true *Emys* in most of its characters; but the sternum is scarcely raised above the underside of the margin, and is united to the thorax by a cartilaginous symphysis; the lobes are separated by a straight depressed suture, but scarcely moveable. It differs from all the other *Cistudinæ* in the legs and toes being covered with minute lanceolate scales as in *Batagur*, with only a few very narrow shields near the claws.

NOTOCHELYS PLATYNOTA.

Emys platynota, Gray, P. Z. S. 1834, p. 54.

Cyclemys platynota, Gray, Cat. Shield Reptiles B.M. p. 43.

Hub. Sumatra; Singapore (*Wallace*).

The head with a pale streak on each side, extended down the upper part of the sides of the neck.

The young specimens have one small black spot on the back edge of the areola of the costal, and two on the back edge of the areola of the vertebral plates.

In the *aberrant Cistudinæ* the lobes are only moveable in the young state; the transverse suture that divides the bones of the sternum into two parts is straight and transverse, while the front edge of the pair of ventral shields overlaps its edge and forms a sinuous line in front of the suture. The lobes of the sternum are narrower than the opening of the thorax, as in *Emys*, and do not cover the legs when they are contracted.

This genus forms the transition to the Tortoises with solid and fixed sternum; but it is easily known from them by the sternum being scarcely raised above the margin of the thorax, and by the existence of the cartilaginous sutures between the sternum and thorax.

7. CYCLEMYS.

The thorax convex or depressed. The sternum flat or slightly convex, with the lateral symphysis well marked, truncated before and notched behind; the cross suture indistinctly marked and narrow, more or less obliterated in the adult, covered with the produced front edge of the ventral shields. The legs covered with large, band-like, thin plates in front. The toes banded above; the front one short, webbed. The hind feet flattened, with the toes broadly webbed; the hinder edge keeled and angularly produced.

PROC. ZOO. SOC.—1863, No. XII.

* *Thorax depressed, suborbicular.*

1. CYCLEMYS ORBICULATA, Bell, P. Z. S. 1834, p. 17.

Cyclemys dentata (adult), Gray, Cat. Shield Reptiles B.M. p. 42, t. 19.

Shields brown-rayed.

Hab. Java.

The small figure of *Emys dentata* of my 'Illustrations of Indian Zoology' represents, I think, probably the young of *Geoemyda grandis*, Gray (Ann. & Mag. N. H. 1860), judging by the series of specimens brought by M. Mouhot from Camboja. The larger figures are those of a young *Batagur*.

** *Thorax oblong, convex.*

2. CYCLEMYS OLDHAMII.

Thorax oblong, convex; back flattened, bluntly keeled, and with a convexity in front, and two acute prominences at the end of the two last vertebral shields; costal plates rather convex, with the areola on the upper hinder margin; shields concentrically striated, brown, with some black lines on the part of the costal shield near the lateral keels; margin toothed behind. Thorax flat; shields pale, with dark rays.

Cestudo dentata (adult), Gray, P. Z. S. 1857, p. 183; Bell, Testudinata, t. (with animal)?

Hab. Mergui (*Professor Oldham*); Siam (*M. Mouhot*).

I was formerly inclined to believe this was an adult of the former species; but we have lately received a second specimen, which proves that it is perfectly distinct.

3. CYCLEMYS OVATA.

Thorax ovate, grey-brown, convex, hinder edge acutely dentated; the middle of the back rather flattened, bluntly keeled in front and above, and acutely keeled on the shelving hinder parts; the side shelving, the front slightly and the hinder part rather deeply impressed; the upper part of the costal plates convex; the sternum pale grey-brown.

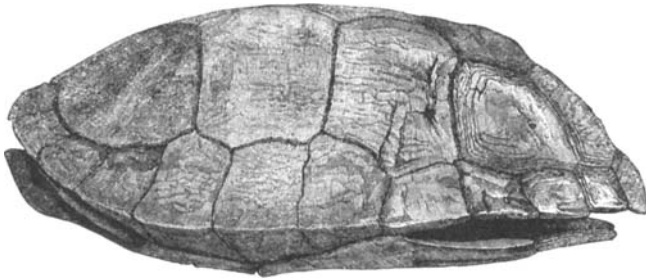
Hab. Sarawak (*Wallace*, no. 138).

The specimen is not in a good state; probably the animal had been in confinement and was out of health; the cross suture on the sternum is much eroded on the edge, and the shell seems to be discoloured.

There is a second specimen, which was presented to the British Museum by Sir Andrew Smith, C.B., without any habitat, which is perhaps a younger stage of the species; but it does not show any mark of the transverse suture on the sternum, and the marginal plates are all broad and equally so, while, in the specimen from Borneo, the fourth, fifth, and sixth lateral marginal plates are much

broad than the others on each side, and ascend up into the margin of the costal ones; and the sides of the shell are rather more convex in front, and only slightly and not so deeply impressed behind.

The shell is uniform pale brown above, and brown below, with regular close radiating paler rays, which are wider and more distinct



near the margin of the shield. The areola on the vertebral shield is close to the hinder margin, near the upper hinder angle of the costal shields, and it is near but not on the hinder outer edge of the sternal shields.

The dried animal is brown; the front edge of the fore legs are covered with irregular-sized scales.

Mr. Bell, in his 'Testudinata,' gives two figures of the underside of the shell of his *Cyclemys orbiculata*; and in his text says that he cannot assent to M. Bibron's referring this species to the genus *Cistudo*. These undersides evidently represent two distinct species; and the upper figure of the two shows the very cross suture that Mr. Bell denies to exist.

The lower figures represent the sternum of *Cyclemys orbiculata*, with the lobes, especially the hinder ones, narrower than the openings in the thorax.

The upper figure represents a species where the lobes are broad and rounded, and nearly as broad as the aperture in the thorax.

It indicates the existence of a species which has not occurred to me, and to which the name of *C. bellii* may be applied. Perhaps it is one of the specimens which he received from either Madras or Bombay; for he says he has received them from those countries as well as from China; and I have not seen any specimens of the genus from either of these two localities.

All the three specimens of this species in the British Museum have the lobes of the sternum narrow, like the lower figure. The figure of the shell with the animal in Mr. Bell's work better represents *Cyclemys oldhamii* than the depressed, flattened *C. orbiculata* of Java.

7. ON TWO NEW BIRDS FROM MADAGASCAR. BY ALFRED
NEWTON, M.A., F.Z.S.

The collection of birds made by my brother, Mr. Edward Newton, the Assistant Colonial Secretary at Mauritius, and a Corresponding Member of this Society, on his second visit to Madagascar, besides the species already described (*anted*, pp. 85 and 165), contains two specimens of species which I believe are as yet unrecognized. Both, as it happens, appear to be in immature plumage, and it is therefore not without some degree of hesitation that I venture to characterize them as new.

The first is a Harrier, which I propose to call

CIRCUS MACROSCELES, sp. nov.

C. aspectu Circo cyaneo *generaliter similis, sed statura valde majore*.

Descr. maris hornotini. *Coloribus omnino ut in exemplis Circi cyanei ejusdem ætatis, sed striis scapinis ventris longioribus, caudæ tegminum latioribus, et rectricum transversalibus angustioribus clarioribusque.*

Long. tota 22·75, alæ plus quam 15*, caudæ 10, tarsi 4, dig. med. cum ungue 2·75, rostri culminis 2 poll. angl. et dec.

Hab. In Madagascar.

Mus. Norvicensi.

Obs. I describe this species as new, chiefly relying on Mr. J. H. Gurney's opinion. He is very confident that it is distinct from any previously characterized, and considers that it comes nearer to *C. assimilis* of Australia than to any other Harrier. Both in colouring and size it is altogether unlike *C. maillardi*, which, in its immature plumage, has some resemblance to *C. æruginosus*; while this is, as stated above, more like *C. cyaneus* at that stage. (Cf. Sclater in 'Ibis,' 1863, pp. 163–165.)

The next bird is a little Flycatcher, which, though not without some doubt, I refer to the genus *Erythrosterna*, and propose to call

ERYTHROSTERNA (?) *BRUNNEICAUDA*, sp. nov.

E. ad Erythrosternam parvam multo appropinquans, *sed cauda unicolore*.

Descr. fœminæ junioris (?). *Supra olivaceo-murina, remigibus externe pallidius limbatis; subtus rufescenti-albida; rostro nigricante, pedibus schistaceis, iridibus pallide flavis.*

Long. tota 4·62, alæ 2, caudæ 1·45, tarsi ·71, dig. med. cum ungue ·48, rostri ·38 poll. angl. et dec.

Hab. In Madagascar.

Mus. A. et E. Newton.

* In exemplo unico remigum extremitates multo sunt abrasæ; si sint integræ, probabiliter 1½ poll. angl. longiores forent. In exemplo *C. cyanei*, ejusdem sexus et ætatis, ex Britannia, mensuræ sunt

Long. tota 19, alæ 13·5, caudæ 8·5, tarsi 2·75, dig. med. cum ungue 1·88, rostri culminis 1·25.

Obs. No species of *Erythrosterna* has hitherto been found, that I am aware of, in Madagascar, or even in South Africa; and I am not acquainted with any previously known Madagascar species of which this could be the undescribed female. I have therefore no alternative but to characterize it as new. I think it quite possible that future naturalists will decline to receive it into the genus to which I have here assigned it; but for the present I believe it cannot be better placed. It has very much the general appearance of the female of the European *Erythrosterna parva*, except that it wants the white spot on either side of the tail, which in that species forms so conspicuous a feature.

My brother's observations on these and the other birds procured by him on his last visit to Madagascar will appear in the forthcoming Numbers of the 'Ibis,' for July and October 1863.

May 26, 1863.

Dr. J. E. Gray, F.R.S., in the Chair.

Mr. R. Swinhoe exhibited a specimen of the rare Wader named *Pseudosclopax semipalmatus*, in full summer plumage, obtained in Northern China.

The following papers were read:—

1. SYNOPTICAL LIST OF THE SPECIES OF FELIS INHABITING THE INDIAN REGION AND THE ADJACENT PARTS OF MIDDLE ASIA. BY E. BLYTH.

Having enjoyed favourable opportunities of studying most of the Asiatic species of *Felis*, and considering that they are in need of elucidation, chiefly from casual or individual varieties (which do not exemplify particular races) having been described as peculiar species, I trust that a list of what I am led to regard as species, with their numerous synonyms in some instances, will prove acceptable to students of zoology.

The most different from the rest is—

1. FELIS JUBATA, Schreber.

F. guttata, Hermann.

F. venatica, A. Smith.

F. fearonis (?), A. Smith, apud Gray.

Chita, or "Cheetah," or "Hunting Leopard" of authors, though *F. pardus* is more commonly known by the former appellation in many parts of India. Original *Παρθίη* et *Leopardus antiquorum*; the latter name founded on the notion (still current in Barbary) of