

c. Rostro altiore, crassiore; pedibus valde elongatis; fascia pectorali nigra. (*Rhinoptilus*.)

7. CURSORIUS CHALCOPTERUS, Temm. Pl. Col. p. 298; Strickl. P. Z. S. 1850, p. 220; Hartl. West Afr. p. 212; Heugl. Syst. Uebers. p. 54; Gurney, Ibis, 1861, p. 134.

Tachydromus chalconpterus, Sw. West. Afr. ii. p. 220; Wagl. Syst. Av. sp. 4.

Rhinoptilus chalconpterus, Sw.

Chalconpterus temminckii, Reichb. Handb. iii. p. 30. f. 2134-35.

Cursorius superciliaris, Heugl. Cab. Journ. 1865, p. 98.

Hab. in Africa merid., occid. et orient.

Note.—Having compared the original specimen of *C. superciliaris*, Heugl., with an authentic example of *C. chalconpterus* from Damaraland, I must declare both to be of the same species.

8. CURSORIUS BITORQUATUS, Jerdon, Birds of Ind. iii. p. 628; Blyth, Journ. As. Soc. of Beng. xvii. p. 254.

Hab. "Eastern Ghats of Nellore, and Cuddapah."

9. CURSORIUS CINCTUS.

Hemerodromus cinctus, Heuglin, Ibis, 1864, p. 31, pl. 2.

Hab. Nil. alb. super.

The young of an undescribed (?) species—"certainly of the same form as *Rhinoptilus bitorquatus*." "It appears to be the young of one of the other African species."—*Blyth, App. to Jerdon, B. of Ind.* iii. p. 629.

The two last species have not been examined by me.

6. A Revision of the Genera of Pteropine Bats (*Pteropidae*), and the Descriptions of some apparently Undescribed Species. By Dr. JOHN EDWARD GRAY, F.R.S., V.P.Z.S., F.L.S., &c.

Some years ago I studied the Bats with care, and described some new genera and species, and commenced a monograph of them, of which my papers were to be only the forerunners. My friend Mr. Robert Tomes took up the study, and seemed inclined to devote considerable time to it; so I retired from the position which he so well occupied, and placed the collection of Bats in the Museum entirely at his disposal, hoping some day that he would prepare a catalogue of them; and he has produced some excellent papers on isolated genera and geographic groups. He is now so occupied with other business that he has not lately been able to give any attention to the subject.

I have been working at other groups of Mammalia, and at length, in the course of my duties, the Bats must be catalogued, and therefore I have, as I may say, been forced to restudy the subject, revise

my catalogue prepared more than twelve years ago, adding the descriptions of the new species which have been received during that period. I am aware that the best that can be done can only be an essay, leaving much to be corrected and modified.

Since I formerly worked on this group, a number of new species have been described; and M. Gervais, M. de Saussure, and Dr. Peters have published excellent essays, describing the external form, the skulls, dentition, and sometimes the skeletons of different species.

I have great advantages for this undertaking. I have a very large collection under my care, perhaps the largest yet formed in Europe, containing many of the specimens on which species have been founded by different English and foreign authors, those species having been described from the specimens then in the British Museum, or since received from the different European museums.

I can lay the whole series of the specimens of each genus or group out before me and examine and compare them in detail, and repeat the operation as often as I desire. I believe that no such examination of a large collection has been made since M. Geoffroy undertook his series of monographs of different families of Mammalia in the Paris Museum, shortly after Napoleon's accession; and I have the advantage of having a collection much more numerous; indeed, judging by the estimate of the Primates given in his 'Catalogue of Primates,' it must be twice or nearly three times as numerous in specimens as the Museum in Paris.

I have made great progress in this catalogue, some specimens of which have already been laid before the Society; and the part containing the Primates is now in the press, and I hope it will appear in the course of this spring. I am aware that some zoologists will complain that the characters are too short; but short as they are, they are the result of much study and analysis. They are the characters that appear to me best suited to distinguish each species from its allies, after a careful examination of a long suite of specimens of each species placed side by side, and with its allies.

It is a labour of love, and I hope to complete the examination and description of the species of the class; but at my age I have many hindrances. I am fortunately greatly assisted in my study by my excellent helper, Mr. Edward Gerrard, who has a very extensive knowledge of the living and preserved specimens and their osteology; and his modesty is only equalled by his knowledge.

The examination of the species of the *Pteropidae* has led me to propose the following distribution of the genera, which may be thus characterized:—

I. *Teeth* 34; *true grinders* 3/3; *hinder small*; *false grinders* 2/3 or 2/2; *front small, and often deciduous.*

1. *Cutting-teeth* 4/4; *lower in a regular series. Tail none. Gland of the penis bony.* Pteropina.

1. PTEROPUS. *Wings from the sides of the hairy back. P. medius.*

2. *EUNYCTERIS*. Wings from the vertebral line; the part of the wing over the back becoming bald. *E. phaiops*.

2. *Cutting-teeth* $4/4$; lower in a regular series. Tail-end free. Gland of penis soft. Macroglossina.

* Head very long and slender; cutting-teeth in an arched series; grinders compressed, narrow.

3. *NOTOPTERIS*. Wings from the vertebral line; part over the back bald. Head very long and slender. False grinders $1/3$. Tail elongate, free. *N. macdonaldii*.

4. *MACROGLOSSUS*. Wings from the sides of the hairy back. Head very long and slender. Tail very short. False grinders $2/3$. *M. minimus*.

** Head moderate; cutting-teeth in a transverse series; grinders thick.

5. *XANTHARPYIA*. Wings from sides of the hairy back. Head elongate, tapering. Fur short, adpressed. *X. straminea*.

6. *ELEUTHERURA*. Wings from sides of the hairy back. Head short, broad. Fur dense, spreading. *E. marginata*.

3. *Cutting-teeth* $2/2$; lower crowded before the base of the canines. Tail-end free. Index finger not clawed. Cephalotina.

7. *CEPHALOTES*. Tail short. Upper cutting-teeth broad; lower truncate. *C. peronii**.

II. Teeth 28; true grinders $2/2$, $2/2$; false grinders $2/3$, front minute, often deciduous. Wings from sides of the hairy back. Penis-gland fleshy.

4. *Cutting-teeth* $2/2$ or $2/0$, crowded between the canines. Head short, broad. Nostrils tubular, diverging. Harpyiana.

8. *HARPYIA*. Tail short, end free. False grinders $1/1$. *H. pallasi*.

5. *Cutting-teeth* $4/4$; lower in a regular series; false grinders $1/1$. Head short, broad; nostrils rather prominent. Glands on shoulder with hair like back. Cynopterina.

9. *CYNOPTERUS*. Tail short, end free. *C. brevicaudata*.

10. *MEGÆRA*. Tail none. *M. ecaudata*.

* The accidentally placing of a label, that was intended for a bottle containing *Pteropus amplexicaudatus*, on a bottle containing *Cephalotes* has caused some confusion; thus *Cephalotes peronii* appears under the name of *Xantharpyia amplexicaudata* in the 'Voyage of the Sulphur,' and its teeth are described under the name of *Pteropus amplexicaudatus* in the observations on *Notopterus* (Proc. Zool. Soc. 1859, p. 36).

6. *Cutting-teeth* $4/4$; *lower in a regular series. Head elongated, swollen in front. Glands on shoulder with a tuft of white hairs. Epomophorina.*

11. EPOMOPS. Face moderate, rounded in front; nose and chin simple, hairy. Skull ovate; face much shorter than the brain-case; upper cutting-teeth separate, spaced. *E. franqueti.*

12. EPOMOPHORUS. Face very long, rounded in front; nose and chin simple, hairy. Skull elongate; face as long as brain-case; upper cutting-teeth close together. *E. whitei.*

13. HYPSEGNATHUS. Face very long, swollen and truncated in front; nose and chin with a fleshy disk, with raised edges. *H. monstrosus.*

The *Pteropidae* are spread over the warmer parts of Africa and Asia, and are found in many of the smaller islands of the Indian and Pacific Oceans.

There is a general similarity in the colouring of the majority of the species; specimens found in the same locality or island often vary considerably from one another, even when the examination of the skull and teeth show that they are of the same species. On the other hand, specimens from different localities often resemble one another so much in their external colouring that it is difficult to distinguish them in any description that can be made; but when the skulls and teeth are examined they prove to be very different species. Under these circumstances the locality of the specimens is an important element in determining the species.

PTEROPUS WALLACEI, sp. nov.

Fur very soft, reddish grey brown; hair of the back black, of the belly ashy white with reddish tips; nape and sides of the shoulders grey; spot on cheek, at angle of mouth, a broad band along the upper lip, a streak upon the centre of the nose (each of them edged with darker brown), the back of the chin, and a lanceolate spot over each eye pure white; the hair on the dorsal surface of the upper arm greyish white. Ears elongate, bald, with two impressed longitudinal grooves.

Hab. Celebes: Macassar (*Mr. Wallace, 1857*).

This beautiful species was brought to England by Mr. Wallace, but appears to have been overlooked; for Mr. Edward Gerrard, Jun., purchased it at Stevens's sale-room, included in a considerable lot of skins of birds and other animals of little value.

The specimen described is very young (the epiphyses of the bones are all separate), and it doubtless grows to a larger size; but this does not in the least invalidate the distinctness of the species.

There are the young of many species of Pteropine Bats in the British Museum, sometimes with their mothers; but in every case the young is coloured like the parent, only the colours are not so decidedly marked. This would lead one to believe that the adult

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of this species, if that were possible, would have the colours also more intensified, instead of less so.

I have great pleasure in naming it after Mr. Wallace, who has enriched our Museum with so many new and beautiful species. It is most like *Pteropus personatus*, but very distinct, and about one-third less in size.

The only other species that has the face ornamented is *P. personatus*; but that has only brown lines on the side of the face and round the eyes. It, like this, is a small species in the genus.

As *P. personatus* has not yet been figured, I have given figures of the heads of the two species for comparison.

Fig. 1.



Pteropus wallacei.

Fig. 2.



Pteropus personatus.

PTEROPUS LIVINGSTONII, sp. nov.

Deep black; the under surface and the rump with interspersed white hairs, most abundant on the latter part; a small round tuft of bright yellow hair on the upper part of each shoulder.

Hab. Island of Johanna, Comoro group (*Dr. Livingstone*).

This species is larger and more densely haired than *Pteropus edwardsii*, found in the same island; and I do not think that it can be an extraordinary variety of that species. It was sent to the collection during the Zambesi expedition.

PTEROPUS ELSEYII, sp. nov.

Fur short, close, uniform reddish brown; head paler and duller; neck, upper part of shoulders, and chest bright pale red bay; under-side of body reddish bay; sides of the body and near the shoulders pale yellowish.

Young. Back black, grey-washed; belly black brown; neck bay; head blackish grey.

Hab. North-east coast of Australia: Claremont Island (*John Macgillivray*, 1860; *Dr. J. B. Elsey*).

I name this species after my late friend Dr. Elsey, the Surgeon in one of the Australian Land Expeditions, who collected many specimens under great difficulties.

7. Descriptions of Eight New Species of Birds from Veragua.

By OSBERT SALVIN, M.A., F.Z.S., &c.

(Plates VII. & VIII.)

During the past year two collections of birds were forwarded to Mr. Godman and myself by Enrique Arcé from Veragua. One was made near Santiago de Veraguas, and the other near a small village called Santa Fé, which is described as being situated thirty miles nearer to Panamá. The two collections comprise 156 species of birds of various orders; nine of these appear to be new to science, eight of which I now describe.

Santa Fé is a mountainous district, and the climate temperate, from which I gather, and also from the character of some of the birds sent, that the elevation at which the greater part of the collection was made, was from 2000 to 4000 feet. There are no species peculiar to greater altitudes.

Arcé is now at Chiriqui, and I trust ere long to receive a collection from that district. As the few species that have been received thence are mostly of great interest, I have hopes that considerable additions will be made to our collections. Through the exertions of Arcé and the collectors who are enriching the Smithsonian Institution, this section of Central America bids fair to become one of the best-explored of any portion of the Neotropical region.

In drawing up the following diagnoses I have endeavoured to compare the species I describe with as many of their nearest allies as I have access to, thereby, I trust, rendering the task of identifying them less laborious and more certain. In this I have been greatly assisted by Dr. Sclater, and the use of the specimens in his rich collection.

1. CATHARUS GRISEICEPS, sp. n.

C. supra olivaceo-brunneus, capite toto cum collo griseis, pileo obscuriore: alis externe cinnamomeis, interne fuscis; cauda cinnamomea: subtus cinereus, gutture multo pallidior: ventre medio et crisso albis: rostro aurantiaco, pedibus flavidis.

Long. tota 6 poll., alæ 3·5, caudæ 2·6, tarsi 1·25, rostri a rictu ·85.

Hab. in Veragua.

Obs. Affinis *C. melpomenæ* (Cab.), sed capite griseo, etc., facile distinguendus.

This species, at once distinguishable from *C. melpomene* and its allies, bears a closer resemblance to them than to the other grey-headed species, described (P. Z. S. 1864, p. 580) as *C. gracilirostris*, which has an entirely black bill and more slender tarsi. In the colour of its back it resembles *C. frantzii* (Cab. J. f. O. 1860, p. 323), specimens of which are in our collection from Costa Rica and Guatemala. The wings are, however, cinnamon-colour, resembling those of *C. melpomene*; but the shade is not so dark, nor so pure, being tinged with olivaceous. A specimen marked "male" has a small purely orange-yellow-coloured bill; while a female has a larger bill, the culmen of which, together with the part surrounding the nostrils, is brownish. Both appear to be quite adult. I believe this difference of colour and size to be a constant sexual character in adult species of *Catharus*, as it is in many of the true *Turdi*. The character holds in three dissected specimens of *C. melpomene* before me; two males have a small yellow bill, and one female a slightly larger bill which is brown above. The bill in all the *Turdidæ* is an uncertain character, being subject to very great variation in size.

This species makes the seventh of the genus *Catharus* found in Central America and Mexico, which district must clearly be considered the metropolis of the genus. Three other species occur in the north-west provinces of South America, viz. *C. aurantirostris*, Hartl. (perhaps the same as *C. melpomene*), *C. fuscater*, Lafr., and *C. maculatus*, Scl. This last species appears to be very closely allied to *C. dryas* (Gould). I have recently compared Dr. Sclater's types of *C. maculatus* with my specimens of *C. dryas* from Vera Paz. The contrast of the colouring of the back hardly exists, and the yellow tinge of the breast agrees in specimens of the same sex.

I strongly suspect, though I have no dissected specimens to prove it, that in the black-headed group (*Malacocichla*) of this genus the males are darker than the females. My specimens of *C. mexicanus* show a marked contrast in depth of colour on both upper and under parts.

The following is a list of the known species of *Catharus*, with the chief references:—

(1.) CATHARUS MELPOMENE (Cab.): Mus. Hein. 1850, p. 5; Sclater, P. Z. S. 1859, p. 323; Salvin, Ibis, 1860, p. 29; Baird, Rev. Am. Birds, pt. i. p. 7.

Hab. Mexico; Guatemala; Costa Rica.