

smaller than the third; molars acutely tubercular, with W-shaped cusps.

Length (of the type specimen, an adult male), head and body 2''·3; tail 1''·9, tail free from membrane 0''·6; head 0''·85; ear 1''·3, tragus 0''·25; forearm 1''·85; thumb 0''·3; third finger—metacarp. 1''·5, 1st ph. 0''·7, 2nd ph. 0''·75, 3rd ph. 0''·55; fifth finger—metacarp. 1''·5, 1st ph. 0''·5, 2nd ph. 0''·5; tibia 0''·7; calcaneum 0''·6; foot 0''·3.

Certain peculiarities in the structure of this very remarkable species recall similar peculiarities in *Thyroptera tricolor*, and have evidently resulted from adaptation to the same purpose. Thus in these two species alone are the toes united to the base of the claws, and in them alone, among all known species of Bats (except the *Phyllorhininæ*), have the toes an equal number of phalanges; they also, in the possession of a third phalanx in the middle finger, differ from all the species of *Vespertilionidæ*, and from those of the allied families. This species, however, differs remarkably from *Thyroptera tricolor* in the structure of the adhesive disks, in the presence of a well developed metacarpal bone of the second finger, in the form of the head and ears, and in dentition, and must undoubtedly be considered the type of a distinct genus of *Vespertilionidæ*.

As remarked above, the adhesive pads are evidently less perfect as clinging-organs than the corresponding parts in *Thyroptera tricolor*, and occupy, in this respect, an intermediate position between those of that species and of *Vesperugo pachypus*.

It is probable that this species (in common with the few other species of Bats provided with such accessory clinging-organs) uses the adhesive pads in sustaining its hold on the smooth hard stems and leaves of palms and of other hard-wooded trees¹.

12. Notes on recent Additions to the Collection of Chiroptera in the Muséum d'Histoire Naturelle at Paris, with Descriptions of New and Rare Species. By G. E. DOBSON, M.A., M.B., &c.

[Received October 28, 1878.]

Through the kindness of M. Alphonse Milne-Edwards I have lately been permitted to examine and describe the valuable additions to the collection of Chiroptera in the Muséum d'Histoire Naturelle, made by various collectors since my last visit to Paris in 1876.

The collections, from which the specimens which form the subject matter of this paper were derived, were made chiefly in the islands of New Guinea and New Caledonia, in Siam, in Africa and Madagascar, and in Central America. The species may therefore

¹ See my 'Catalogue of the Chiroptera in the Collection of the British Museum,' p. 444; also 'Nature,' vol. xviii. p. 585.

be conveniently arranged for description and remarks under the heads of the four zoological regions thus represented.

1. *Australian Region.*

PTEROPUS GERMAINI, n. sp.

Ears shorter than the muzzle, concealed by the long fur of the head, triangular, obtusely pointed, thinly clothed throughout with soft hairs. Fur long and woolly, like that of *Pt. aneiteanus*; on the back long like that of the head, directed backwards. Humerus and forearm rather thinly covered with straight fur, like that of the back. The legs are clothed with long fur which extends to the backs of the feet; the margin of the wing membrane above, almost as far outwards as the extremity of the fifth finger, is clothed with straight appressed hairs; the posterior margin of the narrow interfemoral membrane is quite concealed.

Face in front of and immediately above the eyes light greyish brown; head and the whole inferior surface of the body dark blackish brown, interspersed with several shining greyish hairs, the shoulders and back darker, the rump and legs greyer; upper surface of the neck and shoulders pale yellow, with reddish extremities.

Teeth simple, like those of *Pt. medius*; the first upper premolar small, scarcely raised above the level of the gum, and occupying the centre of the small space between the canine and second premolar; last upper molar slightly larger than the first lower premolar, and about the size of the last lower molar.

Length (of a not quite adult ♀), head and body about 6"; head 2".3; ear 0".8; forearm 4".7; thumb 2".3; third finger—metacarp. 3", 1st ph. 2".5, 2nd ph. 3".5; fifth finger—metacarp. 3", 1st ph. 1".5, 2nd ph. 1".35; tibia 2".2; foot 1".7.

Hab. New Caledonia.

This species resembles externally, to some extent, *Pt. aneiteanus*; but the very different form of the teeth at once distinguishes it. From *Pt. vetulus*, inhabiting the same islands, it is distinguished by the completely different colour of the fur, as well as by the absence of transverse basal ridges in the molars and premolars.

The food of this species appears to consist, in part at least, of figs, as I found portions of these fruits in the mouth of the typical specimen.

At the request of M. Milne-Edwards, who pointed out to me this new species, I have much pleasure in connecting with it the name of its discoverer, M. Germain.

PTEROPUS VETULUS, Jouan.

Besides the type, the Museum possesses several specimens of this species, both male and female, from New Caledonia. These all more or less resemble the type specimen in the colour and distribution of the fur; and the few differences observable are unimportant.

Hab. New Caledonia; Loyalty Isles.

PTEROPUS KERAUDRENI, Quoy & Gaimard.

The specimens in the collection from New Caledonia have the face, back, and inferior surface of the body of a much darker colour than is usually observed in specimens of this species from other localities, and they agree in this respect closely with the types of *Pteropus vanicorensis*, Q. & G., which, as I have indicated in my 'Catalogue of the Chiroptera,' is evidently a variety only of *Pt. keraudreni*.

Hab. New Caledonia, and most other islands of the Polynesian subregion. (See my 'Catalogue of Chiroptera,' p. 64.)

PTEROPUS HYPOMELANUS, Temminck.

Several specimens of this species were obtained by M. Laglaize at Amberbaki, New Guinea.

CYNOPTERUS SCHERZERI (Fitzinger).

Several specimens of this species, labelled "N. Guinée, M. Laglaize." With the exception of that very aberrant form *Cynopterus latidens*, described by me from a specimen from Morty Island, this is the first instance of any species of this genus extending beyond the Oriental region. It is strange that this species should extend from the Nicobar Islands to New Guinea; and it is just possible that some mistake may have been made by the collector when labelling the specimens.

HARPYIA CEPHALOTES, Pallas.

An adult specimen from New Guinea, collected by M. Raffray. This is the first example of this species obtained in the above-named locality.

CEPHALOTES MINOR, n. sp.

Not half the size of adult specimens of *C. peroni*, but closely resembling that species in general structure. The wing-membrane is similarly attached only to the central line of the back along the spine, and is also naked from the shoulders backwards; the head and muzzle are of the same shape as in the larger species; but the ears are less pointed.

The feet are much smaller than in very young specimens of *C. peroni*; and the wing-membrane is attached to the outer toe, not to the space between the toes as in that species; it also extends further outwards, terminating opposite the second joint of the next toe.

The teeth are also slightly different: the upper incisors are wider apart; the second upper premolar has not the prominent antero-internal basal cusp observed in *C. peroni*; and the first lower premolar scarcely rises above the gum.

The following Table exhibits the comparative measurements of this species and of *C. peroni*:—

	<i>C. minor.</i>	<i>C. peronii.</i>
Length, head and body	4·5	6·0
„ tail	0·6	1·3
„ head	1·6	2·0
„ ear	0·7	1·0
„ forearm	3·2	5·3
„ first finger	1·3	1·5
„ third finger, metacarp.	2·0	3·1
„ „ „ 1st ph.	1·5	2·35
„ „ „ 2nd ph.	1·9	3·4
„ fifth finger, metacarp.	2·0	2·8
„ „ „ 1st ph.	1·1	1·7
„ „ „ 2nd ph.	1·1	1·8
„ tibia	1·1	2·3
„ calcaneum	0·25	0·5
„ foot	0·8	1·2

Hab. Amberbaki, New Guinea.

PHYLLORHINA TRICUSPIDATA, Temminck.

Several specimens obtained by M. Raffray in New Guinea. This is the first recorded instance of this species having been found in that country, which, however, it might be expected to inhabit, as it has been noted from Batchian, Amboyna, Morty, and Duke-of-York Island.

PHYLLORHINA CERVINA, Gould.

Examples of this species from New Guinea, collected by M. Laglaize.

NYCTOPHILUS TIMORIENSIS.

Nyctophilus timoriensis (Geoffroy), Dobson, Catal. Chiropt. p. 172 (1878).

Specimens from New South Wales collected by M. de Castelnau.

SCOTOPHILUS TEMMINCKII.

Vespertilio temminckii, Horsfield, Zool. Researches in Java (1824).

Scotophilus temminckii, Gray ; Peters ; Dobson, Monograph Asiat. Chiropt. p. 258 (1876).

Specimens of this very abundant and widely distributed species from Celebes, collected by M. de la Savinière.

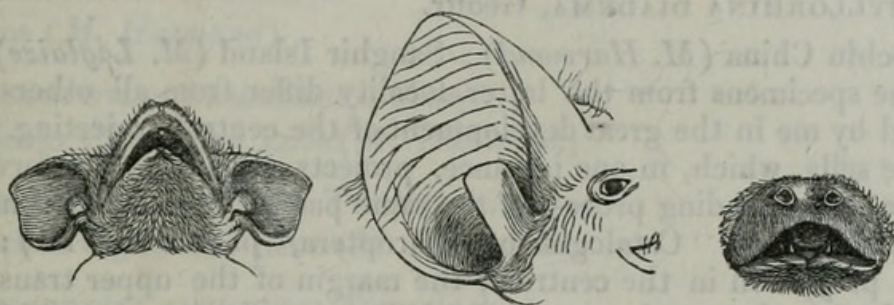
VESPERTILIO ADVERSUS, Horsfield.

Specimens of this species, which extends from Siam to South Australia, have been sent from New Guinea by M. Laglaize.

EMBALLONURA RAFFRAYANA, n. sp.

Slightly larger than *E. nigrescens* from the same region, and

agreeing with that species in the comparatively widely separated nostrils, but resembling the species of the other section of the genus in the projecting extremity of the muzzle, which extends considerably beyond the lower lip; the ears also are much broader, and the upper third of the outer margin of the conch is convex, not concave; the tragus is comparatively shorter and much broader, attaining its



Emballonura raffrayana.

greatest breadth above, where it is so broadly rounded off so as to appear abruptly truncated; the outer and inner margins are straight or faintly concave.

Wings from the ankles or from the tarsi; feet much larger than in *E. nigrescens*; calcanea about two thirds the length of the tibiae.

Fur above dark-brown, paler at the base; beneath paler throughout. Wings nearly naked; upper surface of the interfemoral membrane thinly clothed as far as the extremity of the tail.

Teeth as in *E. nigrescens*, except that the first upper premolar is smaller, and scarcely raised above the level of the gum.

Length (of an adult ♂), head and body 1".65; tail 0".5; head 0".65; ear 0".58, tragus 0".2; forearm 1".55; thumb 0".25; third finger—metacarp. 1".3, 1st ph. 0".4, 2nd ph. 0".65; fourth finger—metacarp. 1".1, 1st ph. 0".3, 2nd ph. 0".2; fifth finger—metacarp. 1", 1st ph. 0".38, 2nd ph. 0".15; tibia 0".6; calcaneum 0".45; foot 0".3.

Hab. Gilolo Island.

At the request of M. Milne-Edwards, I have much pleasure in connecting with this species the name of its discoverer, M. Raffray.

2. Oriental Region.

CYNOXYCTERIS AMPLEXICAUDATA, Geoffr.

Cambodja (*M. Harmand*).

CYNOPTERUS MARGINATUS, Geoffr.

Singapore (*M. de Castelnau*).

EONYCTERIS SPELEA, Dobson.

Java (*M. de la Savinière*).

RHINOLOPHUS ACUMINATUS, Peters.Siam, Laos (*M. Harmand*).

This species has been previously recorded from Java only.

RHINOLOPHUS AFFINIS, Horsfield.Cochin China (*M. Harmand*).**PHYLLORHINA DIADEMA**, Geoffr.Cochin China (*M. Harmand*); Sanghir Island (*M. Laglaize*).

The specimens from the latter locality differ from all others examined by me in the great development of the central projecting ridge of the sella, which, in one instance, projects almost as far forwards as the corresponding process of the same part of the nose-leaf in *Ph. cyclops* (see my 'Catalogue of Chiroptera,' pl. ix. fig. 1 *b*); the blunt projection in the centre of the margin of the upper transverse nose-leaf is also much more defined than in other specimens of this species, and in one of the specimens from Sanghir Island corresponds to a large cell in the back of the leaf.

PHYLLORHINA ARMIGERA, Hodgson.Cochin China (*M. Harmand*).

One of the specimens, an adult male, has the glandular elevations between the nose-leaf and the frontal sac as much developed as in the type of this species in the Calcutta Museum, described and figured by me in the 'Proceedings' for 1873 (p. 241).

PHYLLORHINA BICOLOR, Temminck.Cochin China (*M. Pierre*).**PHYLLORHINA FULVA**, Gray.Cochin China (*M. Harmand*).**PHYLLORHINA LARVATA**, Horsfield.Cochin China (*M. Harmand*).

These specimens have the same brilliant golden-yellow fur as those collected by Dr. Anderson at Prome, Upper Burma, and described by me in my 'Monograph of the Asiatic Chiroptera.'

CÆLOPS FRITHII, Blyth.

Laos, in the roof of the Great Pagoda at Lakhon, collected by *M. Harmand*.

The well-preserved specimens of this most remarkable Bat form a valuable addition to the collection of the Muséum d'Histoire Naturelle. Hitherto this species was known only from the type in the Indian Museum, Calcutta (a dilapidated skin from the Bengal Sunderbuns), and a single specimen, in alcohol, from Java, in the collection of the Leyden Museum. Examination of these specimens permits me to add a few additional notes on the structure of the species.

The calcaneum is weak, but distinct, nearly one fifth of an inch in length, and projects at its extremity slightly beyond the membrane;

there is no trace of a tail externally; the wing-membrane extends to the proximal extremity of the metatarsus; the female has pubic teat-like processes, as in other species of *Rhinolophidæ*; the terminal phalange of the fourth finger ends in a large T-shaped process. The measurements agree closely with those of the specimen in the Leyden Museum.

MEGADERMA SPASMA, L.

Laos (*M. Harmand*).

SCOTOPHILUS TEMMINCKI, Horsf.

Cochin China, and Laos (*M. Harmand*).

VESPERUGO ABRAMUS, Temminck.

Cochin China and Laos (*M. Harmand*).

VESPERUGO PACHYPUS, Temminck.

Laos (*M. Harmand*).

VESPERTILIO MURICOLA, Hodgson.

Laos (*M. Harmand*); Sanghir Island (*M. Laglaize*).

TAPHOZOUS MELANOPOGON, Temminck.

Cochin China (*M. Harmand*).

NYCTINOMUS PLICATUS, Buch.-Ham.

Laos (*M. Harmand*).

3. *Ethiopian Region.*

EPOMOPHORUS COMPTUS, Allen.

Ogoné (*M. Marche*).

EPOMOPHORUS MONSTROSUS, Allen.

Ogoné (*M. Marche*).

PHYLLORHINA COMMERSONI, Geoffr.

Bugamojo, Zanzibar (*Mission du St.-Esprit*).

VESPERUGO NANUS, Peters.

Ogoné (*M. Marche*).

MYXOPODA AURITA, A. Milne-Edwards.

Madagascar (vide *anteà*, p. 871).

COLEURA SEYCHELLENSIS, Peters.

Seychelle Islands (*M. Lantz*).

4. *Neotropical Region.*

MOLOSSUS RUFUS, Geoffr.

Cayenne (*M. Mélinon*).

MOLOSSUS ABRASUS, Temm.

Cayenne (*M. Mélinon*).

RHYNCHONYCTERIS NASO, Wied.

Cayenne (*M. Mélinon*).

NOCTILIO LEPORINUS.

Cayenne (*M. Mélinon*).

SCHIZOSTOMA BRACHYOTE, n. sp.

Muzzle as long, or slightly longer than the distance between the eyes; side of the face deeply grooved beneath the eye. Ear much shorter than the head, but broad at the base, owing to the strong convexity of the inner margin of the conch in its lower two thirds; at the upper third the inner margin becomes abruptly concave, and the ear terminates in a short, obtusely pointed tip: tragus simple. Nose-leaf small, the lancet very acute, but much narrower than the horse-shoe, which is slightly notched on either side, and confluent with the muzzle in front. Centre of the upper lip slightly grooved; lower lip with a shallow narrow groove between two naked prominences, each of which is divided in its upper third by a small oblique groove.

Wings from the ankles or from the extremities of the tibiæ; interfemoral membrane and tail as in other species of the genus; calcaneum slightly longer than the foot. Fur brown, above and beneath.

Dentition.—Inc. $\frac{4}{4}$; c. $\frac{1-1}{1-1}$; pm. $\frac{2-2}{3-3}$; m. $\frac{3-3}{3-3}$

Upper incisors as in *Sch. megalotis*; lower equal, grooved, not crowded; first upper premolar with a very oblique cusp, touching the canine, second straight; first lower premolar much exceeding the second in antero-posterior diameter; second premolar well developed, in the tooth-row; third premolar nearly equal to the first in vertical extent, but less than it in cross section at the base.

Length (of an adult ♂), head and body 2".2; interfemoral membrane 0".9; head 0".9; ear 0".65 × 0".5, tragus 0".28; nose-leaf 0".3 × 0".2; forearm 1".6; thumb 0".35; third finger—metacarp. 1".4, 1st ph. 0".55, 2nd ph. 0".7, 3rd ph. 0".35; fifth finger—metacarp. 1".35, 1st ph. 0".42, 2nd ph. 0".45; tibia 0".65; calcaneum 0".45; foot 0".4.

Hab. Cayenne (*M. Mélinon*).

This is a very aberrant form, differing from all the other species in the development of the chin-warts, and in the shallowness of the central groove between them, as well as in the shortness and peculiar shape of the ears. In the second phalanx of the middle finger being conspicuously longer than the first, it agrees with *Sch. behni*; but, unlike that species, it has the calcaneum longer than the foot.

CAROLLIA BREVICAUDA, Wied.

Darien (*Dr. Viguier*); Cayenne (*M. Mélinon*).

ARTIBEUS QUADRIVITTATUS, Peters.

Cayenne (*M. Mélinon*).



Dobson, G. E. 1878. "Notes on recent additions to the collection of Chiroptera in the Museum d'Histoire Naturelle at Paris, with descriptions of new and rare species." *Proceedings of the Zoological Society of London* 1878, 873–880.

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