

CATALOGUE
OF
MAMMALIA

T. CANTOR

152A
189 (8)

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CATALOGUE OF MAMMALIA.

Inhabiting the MALAYAN PENINSULA AND ISLANDS.

Collected or observed by THEODORE CANTOR, M. D., Bengal
Medical Service. *Te*

☞ Localities printed in Italics signify those from whence the animals of the Catalogue were obtained; in ordinary type those previously given by authors.

QUADRUMANA.

SIMIADÆ.

GEN.—PITHECUS, *Geoffroy*.

PITHECUS SATYRUS, *Geoffroy*.

SYN.—*Simia Satyrus*, Linné.

Simia Agrias, Schreber.

Singe de Wurmb, Audebert.

Papio Wurmbii, Latreille.

Pithecus Satyrus, Desmarest.

Simia Wurmbii, Kuhl.

Orang Pandak, Raffles.

<i>Simia Satyrus</i> ,	} apud Fisher.
<i>Simia Abelii</i> ,	
<i>Simia Wurmbii</i> ,	

Simia Satyrus, apud Ogilby.

Satyrus rufus, Lesson.

Pithecus Satyrus, apud Martin.

Simia Satyrus, apud Schinz.

"O'rang U'tan" of the Malays.

HAB.—*Borneo, Sumatra.*

The physiognomy and the colour of the face exhibit a marked difference in living individuals from the two localities.*

GEN.—*HYLOBATES*, Illiger.

HYLOBATES LAR, Ogilby.

SYN.—Grand Gibbon, Buffon.

Homo Lar, Linné, Mantiss.

Simia longimana, Schreber.

Simia longimana, Grand, et Petit Gibbon, Erxleb.

Simia Lar, Linné Syst.

Le Gibbon, Audebert.

Pithecus Lar, Desmarest.

Simia albimana, Vigors and Horsfield.

Simia Lar, apud Fischer.

Hylobates Lar, Lesson, apud Martin.

Hylobates albimanus, apud Schinz.

"Ungka étam" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Siam, Burmah, Tenasserim.

LIGHT-COLOURED VAR.

SYN.—Petit Gibbon, Buffon.

Simia Lar, β , Linné.

Pithecus variegatus, Geoff.

Pithecus variegatus, apud Kuhl.

Pithecus variegatus, apud Desmarest.

Hylobates variegatus, Ogilby.

Hylobates leuciscus, apud Cantor. Ann. and Mag. of Nat. Hist.

"Ungka puti" and "Wow-wow" of the Malays of the Peninsula.

* An excellent likeness of a young male Bornean Orang Utan, living in my possession upwards of two years, has lately been taken by Mr. Thornam, one of the artists of the scientific expedition on His Danish Majesty's Ship 'Galathea.'

The colour varies from blackish-brown to light-brown, yellowish or dirty-white, sometimes uniform, sometimes mottled. The index and middle toes, of both or of one foot, are in some individuals, of whatever sex or shade of colour, united by a broad web throughout the whole of the first phalanx; in some partially so, and in others not. The ribs vary from twelve ($7+5$) to thirteen pairs ($7+6$), as observed by Mr. Blyth, (Journal Asiatic Society 1841, Vol. X. p. 839.)

HYLOBATES AGILIS, F. Cuvier.

VAR. UNGKA ETAM, Martin.

SYN.—Ungka etam, Raffles.

Oungka, Hylobates Lar, F. Cuv.

Simia Lar, Vigors and Horsfield.

Hylobates Rafflesii, Geoff. apud Ogilby.

Hylobates variegatus, Müller apud Schinz*.

“Ungka etam” of the Malays of the Peninsula.

HAB.—Malayan Peninsula, (Malacca, Purlis, Kéddah, Púngah.)
Sumatra.

The first phalanges of the index and middle toe are in some individuals of either sex, partially or entirely united by a web. Sometimes the first phalanx of the middle toe is partially united to the fourth.

An adult male examined, had thirteen pair of ribs ($6+7$), an adult female fourteen, ($7+7$), a young male on the left side thirteen ($7+6$), on the right twelve ($7+5$). In these three individuals the stomach was constricted at the fundus and the pyloric part, which characters, when compared with specimens of *Hylobates agilis* from Sumatra, will go far to decide the identity of that species and *H. Rafflesii*. On the Malayan Peninsula, the latter appears to be less numerous than *H. Lar*. The light-coloured Var. of *H. agilis* I have not seen.

HYLOBATES LEUCISCUS, Kuhl.

SYN.—“Wou-wou,” Camper.

Simia leucisca, Schreber.

Simia moloch, Audebert.

Pithecus cinereus, Latreille.

Pithecus leuciscus, Geoffroy.

Pithecus leuciscus, apud Desmarest.

* Schinz gives as a synonyme: *Pithecus variegatus*, Geoff. which, however, is *Hylobates Lar*, Var.

Simia leucisca, apud Fisher.

Hylobates leuciscus, apud Ogilby.

Hylobates leuciscus, apud Schinz.*

HAB.—*Borneo*, ?

Java.

GEN.—*SEMNOPIITHECUS*, F. Cuv.

SEMNOPIITHECUS *OBSCURUS*, Reid.

SYN.—*Simia maura* ? Lin. Lotong, apud Raffles.†

Semnopithecus leucomystax, Temm. in MSS.

Semnopithecus obscurus, apud Martin.

Presbytes obscura, Gray, List of Mamm. B. M.

Semnopithecus sumatranus, Müller, apud Schinz.‡

Semnopithecus halonifer, Cantor, Proceed. Linn. Soc.

“Lótong” or “Lótong étam,” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*, *Pinang*, *Singapore*.

District adjacent to Singapore, in the Malayan Peninsula.

SEMNOPIITHECUS *ALBOCINEREUS*, Schinz.

SYN.—*Cercopithecus albocinereus*, Desmarest.

Simia albocinerea, Fisher.

Semnopithecus dorsatus, (young) Waterhouse MSS.§ apud

Presbytes cinerea, Gray, List. [Martin.

Semnopithecus albimanus, Is. Geoff. ?

“Ka-ka” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

* Among the Syn. occurs *Ungka puti*, Raffles, which is *Hylobates agilis*.

† The Hab. Pinang and Singapore, in neither of which islands *Semnopithecus femoralis* appears to occur, tends to prove, that Sir S. Raffles did not, as it has been supposed, refer to that species. His short description indicates *S. obscurus* (Lotong,) the most common species in both islands. Sir S. Raffles evidently did not describe the living animal, or he would not have omitted one of the most striking characters, viz. the white marks of the face, which, in preserved specimens, become obliterated, so that the face appears uniformly black. The omission of this character by Sir S. Raffles, and subsequently by later describers of this species, has given rise to confusion.

‡ Schinz repeats *S. femoralis*, Martin, as a Syn. for *S. sumatranus*, and says in a note, that Müller in his monograph of *Semnopithecus* refers that species to his *S. sumatranus* (Schinz Syn. Mam. I. p. 39, note.) Were even the two identical, the species should not have been renamed, as *S. femoralis*, Horsfield, not Martin, would take precedence, being the denomination under which Dr. Horsfield described it in the *Appendix to the Life of Sir T. Stamford Raffles*, 1830.

§ Martin, p. 481, refers the young *S. dorsatus* to *S. femoralis*, but the description is that of the young of the present species.

The young of this species, described by Martin, p. 481, is from the peculiar distribution of the colours, as easily distinguished from the young of *S. obscurus*, as it is difficult to distinguish the adults of these two species. Both attain to the same size, have in common the shape of the body, the white marks of the face, and the general distribution of colours. In the adult of the present species the prevailing colours are clear ashy-grey above, and white below. On either parietal bone, the hairs form a whorl, and the anterior are directed forward, projecting beyond the eyebrows. The two whorls are distinct in the young, though the hairs of the head are too short to mingle with the long, erect, divergent, black hairs of the eyebrows. Just below the spot where the two whorls come in contact, the skull is naked, thus forming a rather broad, triangular forehead. The general colour of *S. obscurus*, both in the young and adult state, is considerably darker. On the upper parts a blackish, or brownish ash colour prevails, lighter below, which acquires in some individuals a whitish appearance, from the white skin of the stomach, which is but scantily covered with hairs. Of parietal whorls there is no trace; the hairs of the head, directed backwards, originate in a peak as far down as the glabella, and are smoothed down on the top of the head from the occipital crest backward.

SEMNOPIRHECUS CRISTATUS, Horsfield.

SYN.—*Simia cristata*, Chingkau, Raffles.

Semnoprithacus pruinofus, Desmarest.

Semnoprithacus pruinofus, apud Lesson.

Semnoprithacus cristatus, apud Martin.

Presbytes cristata, Gray :* List.

Semnoprithacus cristatus, apud Schinz.*

HAB.—*Pinang, Malayan Peninsula.*

Sumatra, Borneo, Banka.

The whitish colour round the eyes and the mouth is present, though less distinct in this than in the preceding two species.

SEMNOPIRHECUS FEMORALIS, Horsfield.

SYN.—*Semnoprithacus chrysomelas*, Muller, apud Martin and Schinz.

* Gray quotes *S. maurus*, Horsfield, and Schinz *S. femoralis*, Martin, as synonyms, both of which are species, in physiognomy, colours, and, as far as *S. maurus* is concerned, in habits distinctly different from the present one.

HAB.—*Purkis (on the Malayan Peninsula.)*

Borneo, Java (?), Sumatra (?).

In a young male of this, apparently everywhere difficultly procurable species, the face during life was intense black, except the white-haired lips and the chin, which were of a milk-white colour. In the preserved specimen, the latter soon changed into the dull brownish-black of the rest of the face. The interdigital membrane, often loosely connecting the first phalanges of the four fingers and toes in *S. obscurus*, *albocinereus*, *cristatus* and other Malayan monkeys, was also present in this individual, in which even the first and second phalanges of the index and middle toe were thus connected. In preserved specimens, the interdigital web becomes shrivelled and indistinct, and therefore, being at all times a very questionable, if not altogether inadmissible, specific character, ought in such state to be least relied upon. On its arrival at Pinang, the animal was in too sickly a state to allow of its natural habits being observed.

GEN.—*CERCOPITHECUS*, apud *Ogilby*.

CERCOPITHECUS CYNOMOLGUS, *Ogilby*.

SYN.—*Simia cynomolgus*, Linné.

Simia aygula, Linné.

Simia attys, Schreber.

Macacus cynomolgus, Desmarest.

Simia fascicularis, Raffles.

Cercocebus aygula, Geoff. apud Horsfield.

Macacus cynomolgus, apud Gray : List.

Macacus cynomolgus, apud Schinz.

“Kra” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Sumatra, Java, Banka, Borneo, Celebes, Timor, Tenasserim, Nicobar Islands.

The first phalanges of the four fingers and toes, and in some individuals also the second phalanges of the toes, are united by a membrane.

GEN.—*PAPIO*, apud *Ogilby*.

PAPIO NEMESTRINUS, *Ogilby*.

SYN.—*Simia nemestrinus*, Linné.

Simia platypygos, Schreber.

Simia fusca, Shaw.

Macacus nemestrinus, Desmarest.

Simia carpolegus, Raffles.

Macacus nemestrinus, apud Gray, List.

Macacus nemestrinus, apud Schinz.

"Broh" of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Sumatra, Borneo.

The interdigital membrane of the first phalanges of the four fingers and index, and middle toe, occurs also in this species.

LEMURIDÆ.

GEN.—*NYCTICEBUS*, Geoffroy.

NYCTICEBUS TARDIGRADUS, Waterhouse, Cat. Zool. Soc.

SYN.—*Lemur tardigradus*, Linné apud Raffles.

Nycticebus bengalensis, Geoff.

Nycticebus javanicus, Geoff.

Loris tardigradus, Geoff.

Stenops javanicus, Van der Hoeven.

Stenops tardigradus, Wagner, apud Schinz.

"Kúkang" of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Siam, Tenasserim, Arracan, Bengal, Sylhet, Assam.

The sublingual appendage is cartilaginous, of a white colour; the apex divided in a number of fine points. The new-born is of the same colour as the adult, but paler, and has the dense, soft fur, mixed with a number of long hairs, grey at the base, white at the point. In a male, measuring from the apex of the nose to the root of the tail one foot two and a half inches, the tail five-eighths of an inch, the dimensions of the intestinal canal, were:

Small Intestines,	3 feet $\frac{1}{2}$ inches.
Large ditto,	2 „ $3\frac{1}{2}$ „
Cæcum,	0 „ $3\frac{1}{2}$ „

GEN.—*GALEOPITHECUS*, Pallas.

GALEOPITHECUS TEMMINCKII, Waterhouse.

SYN.—*Lemur volans*, Linn. apud Marsden and Raffles.

"Kúbong" or "Kúrbong" of the Malays of the Peninsula.

HAB.—*Singapore, Pinang, and other Islands in the Straits of Malacca. Lencavy Islands, Malayan Peninsula.*

Java, Sumatra, Borneo, Pelew Islands, Siam.

Two individuals are never of precisely the same design and ground-colour, which latter varies from clear ashy-grey to greyish-brown or chesnut. The white spots on the back of the anterior extremities, appear to be constant in every age. Though there are four mammae, situated in pairs one above the other, close to the axilla, of a number of females with young, none had more than one offspring, which was carried wrapped in the wide mantle-like membrane. In several shot on the hills at Pinang, the stomach contained vegetable matter, but no remains of insects. In confinement, plantains constitute the favourite food, but deprived of liberty the animal soon pines and dies. The anterior margin of the broad smooth tongue has a fringed appearance, produced by a number of rounded papillae. In a male, measuring from the apex of the nose to the root of the tail one foot four inches, the tail nine inches, the intestinal canal was of the following dimensions:

Small Intestines,	4 feet 4 inches.
Large ditto,	7 „ 7 „
Cæcum,	0 „ 11 „
Costæ veræ seven pairs, spuriae six pairs.	

CARNIVORA.

CHEIROPTERA.

INSECTIVORA.

GEN.—RHINOPOMA, *Geoffroy.*

RHINOPOMA, *HARDWICKII*, Gray.

SYN.—*Vespertilio* (*Rhinopoma*) *Hardwickii*, Elliot.

HAB.—*Malayan Peninsula.*

Southern Mahratta country, Calcutta, Allahabad,* Agra,†
Mirzapore.

A single male, in no way differing from Bengal individuals, was obtained by Captain Congalton, H. C. Steamer 'Diana,' in a cave on an island in Girbee river, in Latitude 8° 0', on the Malayan Peninsula.

This species is provided with a true cæcum, the existence of which in all Cheiroptera has erroneously been denied, or restricted to the car-

* Numbers inhabit the subterraneous Hindoo place of worship within the Fort at Allahabad.

† In the Taj-Mahal.

diac cæcum observed in the genera *Vampyrus* and *Pteropus*. The present species, and *Megaderma spasma*, also possessing a true cæcum, thus present a higher organisation than has hitherto been attributed to Cheiroptera.

Length of the small Intestine,	...	...	$7\frac{2}{8}$	inches.
„ „ large ditto,	..	..	1	„
„ „ cæcum,	..	..	$0\frac{3}{16}$	„

GEN.—MEGADERMA, *Geoffroy*.

MEGADERMA SPASMA, *Geoffroy*.

SYN.—*Vespertilio spasma*, Schreber.

Megaderma trifolium, *Geoffroy*.

Megaderma spasma, apud Fisher.

Megaderma spasma, apud Schinz.

HAB.—*Pinang, Malayan Peninsula*.

Singapore, Java, Ternate.

Incis. $\frac{0}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

Length of the head and body $3\frac{2}{8}$ inches.

„ „ „ inter-femoral membrane, 1 inch.

Extent of the flying membrane, .. 14 inches.

The five caudal vertebræ project one quarter of an inch beyond the pelvis, but are completely enveloped in the inter-femoral membrane, and therefore not apparent. The inguinal warts are, as in the *Rhinolophi*, most developed in the adult female. A true cæcum, though smaller than in *Rhinopoma Hardwickii*, is present in this species.

Length of the small Intestines,	..	..	..	7	inches.
„ „ large ditto,	..	..	..	$1\frac{1}{16}$	inches.
„ „ cæcum,	..	..	..	$0\frac{1}{16}$	inches.

GEN.—NYCTINOMUS, *Geoffroy*.

NYCTINOMUS TENUIS, *Horsfield*.

SYN.—*Nyctinomus tenuis*, apud Fisher.

Molosse grêle, *Temminck*.

Dysopes tenuis, *Schinz*.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Borneo.

Two individuals had the back of a velvety snuff colour, becoming a shade lighter on the under-parts. Entire length of the larger four and four-eighth inches, of which the tail one and two-fourth inches. Extent of the flying membrane ten and four-eighth inches. In the size of the ears some difference exists in the two.

GEN.—TAPHOZOUS, *Geoffroy*.

TAPHOZOUS MELANOPOGON, Temminck.

SYN.—Taphozous melanopogon, apud Schinz.

HAB.—*Pulo-Tikus, Pulo-Lancávy, Malayan Peninsula.*

Java, Caves of Kannerá.

Temminck's description, as quoted by Schinz, is taken from the adult male, the Malayan individuals of which differ in having the black beard surrounded by a broad light-brown band, covering, like a pelerine, the chest and shoulders. The rest of the lower parts are either white or brownish-white. The flying membrane in the adult male is whitish; in the females and young males it is blackish or brownish between the legs, along the sides of the body and the arms. The colour of the female and young male is on the back of a more or less brownish mouse-grey, becoming much lighter or whitish beneath, but both are destitute of the black beard, which, out of a number of between forty and fifty from different Malayan localities, occurred but in seven males, although some of the beardless males in size and extent of flying membrane equalled, or even slightly exceeded, the bearded. The entire length of the largest male was four inches, of which the tail measured one inch.

Extent of flying membrane fifteen and four-eighth inches.

Dentition: Incis. $\frac{0}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

TAPHOZOUS SACCOLAIMUS, Temminck.

SYN.—Taphozous pulcher, Elliot MSS. apud Blyth.

HAB.—*Pinang.*

Java, Sumatra, Borneo, Celebes, Southern India.

In two males captured at Pinang in houses in the valley, the colours somewhat differ from Temminck's description, quoted by Schinz. In the larger, the head and back are of a sooty black, with a few white dashes, the lower parts of a pure white. The flying membrane is black

between the legs, along the sides of the body and the arms, and between the index, second and third fingers; the rest being dull semi-transparent white. The length from the apex of the nose to the posterior margin of the inter-femoral margin, is four and seven-eighth inches, of which the tail measures one inch. The extent of the flying membrane eighteen inches. Dentition as in *T. melanopogon*. The smaller differs in having the chest of a pale brownish-white, the abdomen and the pubes light rust-coloured, leaving the sides pure white. Mr. Blyth quotes *Taphozous pulcher*, Elliot, from Southern India, as being "black-brown above with white pencillings, and pure white below," (Journal As. Soc. XIII. 1844. p. 492,) from which, as well as from Mr. Elliot's specimen, at present in the Museum of the Asiatic Society, it appears that the Indian more resemble the Malayan individuals than those of the Indian Archipelago, described by Temminck. The internal surface of the gular sac secretes, an odorous oily fluid, of a light brown colour.

GEN.—RHINOLOPHUS, *Geoffroy*.

RHINOLOPHUS, *Gray*.

RHINOLOPHUS AFFINIS, *Horsfield*.

HAB.—*Pinang*.

Java.

Of two individuals, the male is reddish-brown above, light greyish-brown beneath; the female is above golden fulvous, which becomes lighter on the lower parts.

Entire length of the male, .. $2\frac{4}{8}$ inches—female, $2\frac{7}{8}$ inches.

Tail, $\frac{4}{8}$ „ female, $\frac{5}{8}$ „

Extent of flying membrane, .. $11\frac{2}{8}$ „ female, $12\frac{4}{8}$ „

Incis. $\frac{2}{4}$ Canin. $\frac{1-2}{1-1}$ Molar, $\frac{5.5}{5.5}$

The inguinal warts are highly developed in the female.

HIPPOSIDEROS, *Gray*.

A. Adult male with a frontal pore, with a tuft of rigid hairs.

HIPPOSIDEROS DIADEMA, *Gray*?

SYN.—*Rhinolophus Diadema*, *Geoffroy*?

HAB.—*Pinang*, *Malayan Peninsula*.

Timor.

The Malayan individuals are, according to age and sex, of a more or less intense reddish or greyish-brown above, under certain lights assum-

ing a golden lustre, owing to the whitish points of the hairs; beneath, they are of a lighter greyish-brown. Individuals occur of a light golden-brown, in colours resembling *Rhinolophus larvatus*, Horsfield. In the adult male, the livid flesh-coloured nasal appendage is larger, more complicated, and somewhat different from the figure given by Geoffroy St. Hilaire, (Ann. du Muséum XX, Pl. 5 and 6), which resembles the female in the simpler appendage and in the absence of the frontal pore. The latter organ, in the adult male, is large, secreting a yellowish brown oily fluid, the odour of which resembles that of *Arctictis Binturong*, Fisher. A female, during lactation, presented a great inequality in the development of the inguinal warts, of which the right measured one-quarter of an inch in length. At the time of her capture, it was reported that a young one had been "sucking" the right wart. Not having myself observed the young clinging to that organ, I cannot vouch for the correctness of a statement which, if authentic, would tend to explain the use, being to afford support to the young, when not sucking. The size of the Malayan individuals appears to exceed those from Timor, the entire length of the former being five and six-eighth inches, of which the tail measures two inches. Extent of the flying membrane twenty-one and a half to twenty-two inches. The extremity of the 2nd phalanx of the fourth and fifth fingers is bifid, or terminating with two minute diverging joints, a structure also existing in the Malayan individuals of the following species.

$$\text{Incis. } \frac{2}{4} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Molar, } \frac{5.5}{5.5}$$

HIPPOSIDEROS NOBILIS, Gray.

SYN.—*Rhinolophus nobilis*, Horsfield.

Rhinolophus nobilis, apud Fisher.

Rhinolophe fameux, Temminck.

Rhinolophus nobilis, apud Schinz.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra, Timor, Amboyna.

The frontal pore is less developed than in the former species, as compared with which the present is of a more slender form, though of a size little less inferior. Entire length five and four-eighth inches, of which the tail measures two and one-eighth inches. Extent of flying membrane twenty-one and four eighth inches. Dentition similar to that

of *H. Diadema*. In the valley of Pinang single individuals of both species are at night abroad at all seasons, but during the rains they are particularly numerous.

HIPPOSIDEROS VULGARIS, Gray.

SYN.—*Rhinolophus vulgaris*, Horsfield.

Rhinolophus insignis, Var. apud Temminck.

Rhinolophus insignis, Horsf. apud Schinz.

Rhinolophus vulgaris, Horsf. *female of insignis*, apud Schinz.*

HAB.—*Pinang*.

Java.

Entire length four inches, of which the tail measures one and three-eighth; extent of flying membrane fourteen inches.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

HIPPOSIDEROS MURINUS, Gray.

SYN.—*Rhinolophus murinus*, Elliot.

HAB.—*Pinang*.

Southern Mahratta Country, Nicobar Islands.

Entire length two and four-eighth inches, of which the tail measures one inch. Extent of flying membrane nine and four-eighth inches. Dentition similar to that of the last species.

B. Forehead simple.

HIPPOSIDEROS GALERITUS, N. S.

H. prosthematis simplicis membranâ transversâ latâ, altè erectâ, aurículas tangente; auricularum, latè pyriformium, apicibus laciniâ exsertis, besse postico lobuloque basali villosis; vellere longo, denso, molli, bicolore; suprâ saturatè, subtus pallidius-fusco-rufescenti.

Latet fœmina.

HAB.—*Pinang*.

Entire length three inches, of which the tail measures one inch. Extent of the flying membrane ten and four-eighth inches.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4.4}{5.5}$

The livid flesh-coloured nasal appendage is simple but large, occupying the whole upper part of the face and the forehead; the horse-shoe or

* The only individual of *Rhinolophus vulgaris*, Horsfield, observed at Pinang, happened to be a *male*.

nasal disk covers the short, rounded, hairy muzzle, which has two leaves on either side; the transversal membrane is concave, as broad and long as the horizontal horse-shoe, which it joins under a right angle, while its sides are almost in contact with the ears. The latter are sub-erect, broader than long, their breadth equalling the length of the head; the shape is broad, pyriform, narrowing towards the apex, which appears like a small artificially rounded flap, scarcely elevated above the level of the fur covering the vertex. More than two-thirds of the back of the ear is covered with fur, leaving a narrow naked line along the external margin, which, as well as the singular shape of the ear itself, affords a distinguishing character. The hairs are buff or whitish at the base, the other half of their length brown. The general colour of the upper parts is deep-brown, with a slight reddish hue, becoming a shade lighter beneath.

This species somewhat resembles *Hipposideros apiculatus*, Gray (*Vespertilio speoris*, Schneider, apud Schreber; *Rhinolophus speoris*, Geoffroy,) from which it however differs in the absence of the frontal pore, in the shape of the ears, and in colours. A solitary male was captured in the valley of Pinang.

GEN.—VESPERTILIO, Linné.

VESPERTILIO, Gray.

VESPERTILIO ADVERSUS, Horsfield?

SYN.—Vespertilio adversus, Fisher?

Vespertilio adversus, Temminck?

Vespertilio cineraceus, Blyth MSS.

HAB.—Pinang.

Java, Calcutta.

This bat having the characteristic distinction of the upper incisor, described by Horsfield, is above greyish-brown, beneath light-greyish, measuring in length three and two-eighth inches, of which the tail is one and four-eighth inch. Extent of flying membrane ten and four-eighth inches. It differs from *V. adversus* in having on each side five molars, of which but two are spurious, which character also obtains in *V. cineraceus*, Blyth MSS. and specimen in the Museum Asiatic Society, which (as observed by Mr. Blyth,) as well as the present, may prove varieties of *V. adversus*, Horsfield.

KIRIVOULA, Gray.

KIRIVOULA PICTA, Gray.

SYN.—Vespertilio ternatanus, Seba?

Vespertilio pictus, Pallas, apud Horsfield.

Vespertilio kerivoula, Boddaert.

Vespertilio kerivoula, apud Geoffroy.

HAB.—Pinang.

Java, Sumatra, Borneo, Ceylon.

KIRIVOULA TENUIS, Gray.

SYN.—Vespertilio tenuis, Temminck, apud Schinz.

HAB.—Pinang.

Java, Sumatra, Borneo.

A single male, in colours slightly differing from Temminck's, being above of a dark greyish-brown, many of the hairs with white points; beneath of a lighter shade. Entire length three and two-fourth inches, of which the tail one and four-eighth inch. Extent of flying membrane ten inches.

Incis. $\frac{2-2}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{5.5}{5.5}$

Trilatitus, Gray.

TRILATITUS HORSFIELDII, Gray.

SYN.—Vespertilio tralatitius, Horsfield.

Vespertilio Gärtneri, Kuhl, apud Schinz.

HAB.—Pinang.

Java, Sumatra.

Scotophilus, Leach, apud Gray.

SCOTOPHILUS TEMMINCKII, Gray.

SYN.—Vespertilio Temminckii, Horsfield.

Vespertilio Belangerii, Isid. Geoff.

Vespertilio noctulinus, Isid. Geoff.

Scotophilus castaneus, Gray.

Nycticeius Temminckii, Schinz.

Nycticeius Belangerii, Temminck, apud Schinz.

Nycticeius noctulinus, Temminck, apud Schinz.

“Klâwah” of the Malays of the Peninsula.

HAB.—Singapore, Pinang, Malayan Peninsula and Islands.

Java, Sumatra, Borneo, Timor, Pondicherry, Calcutta.

As observed by Schinz, this species is very variable in its colours according to age, all of which variations occur in individuals inhabiting Pinang and the Malayan Peninsula. The following are the specific names attributed to different individuals of this species :—

1. *Vespertilio Temminckii*, as originally described and figured in *Zoological Researches in Java*. Back dark-brown; greyish-brown underneath. Entire length four inches six lin., of which the tail one five-eighth of an inch; Extent of flying membrane twelve inches.

2. *Scotophilus castaneus*, Gray.

3. *Nycticeius Belangeri*, Temminck, apud Schinz. Hairs of the back brown at the base, chesnut or olive-chesnut at the apex; beneath light yellowish-brown, isabella or whitish. Entire length $3\frac{1}{2}$ " of which the tail $1\frac{11}{16}$ " Extent of flying membrane 13".

Incis. $\frac{1-1}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4.4}{5.5}$

4. *Nycticeius noctulinus*, Temminck, apud Schinz, is the very young. Above more or less intense brown or rust-coloured; beneath isabella or light greyish-brown. Entire length three to three two-eighth inches, of which the tail seven-eighth to one two-eighth of an inch. Extent of flying membrane eight six-eighth to nine inches. In this state it has frequently been observed clinging to the mother.

Incis. $\frac{2-2}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4.4}{5.5}$

This species is exceedingly numerous, forming large congregations in sheltered situations on the Malayan Peninsula, and in the caves on the numerous islands of limestone which stud the shores from Maulmein to Java, and in such localities large deposits of Guano occur. The latter, ("Ty Kláwah" of the Malays, i. e. bats' manure,) has been tried by agriculturists at Pinang, but has been found much less efficacious than the Guano obtained from the swift (*Collocalia*), producing the edible nests.

FRUGIVORA.

GEN.—PTEROPUS, *Brisson*.

PTEROPUS EDULIS, *Geoffroy*.

SYN.—Pteropus javanicus, *Desm.* apud *Horsfield*.

Pteropus Edwardsii, *Geoffroy*.

“Kalong” of the Javanese.

“Klúang” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula and Islands.*
Java, Sumatra, Banda, Bengal, Assam.

GEN.—CYNOPTERUS, *Fred. Cuvier.*

CYNOPTERUS MARGINATUS, F. CUV.

SYN.—*Vespertilio marginatus*, Buchanan Hamilton, MSS.

Pteropus marginatus, Geoffroy.

Pteropus titthæcheilus, Temm.

Pachysoma titthæcheilus, Temm.

Pachysoma brevicaudatum, Is. Geoff.

Pteropus brevicaudatus, Schinz.

Pachysoma Diardii, Isid. Geoff.

Pteropus Diardii, Schinz.

Pachysoma Duvaucellii, Is. Geoff.

Pteropus pyrivorus, Hodgson, apud Gray.

HAB.—*Singapore, Pinang, Malayan Peninsula and Islands.*

Java, Sumatra, Southern Mahratta Country, Bengal, Nipal.

The colour is very variable, not only individually, but according to age and sex, which has given rise to several supposed distinct species. But they all resemble each other in habits and dentition, they occupy one common place of rest, and their new-born, or very young, are of a uniform colour. The ears of the adult are, in all, more or less distinctly margined with white.

1. *Cynopterus marginatus*. Back reddish, or brownish-grey; lighter underneath.

2. *Pachysoma titthæcheilus*. 3. *Pteropus brevicaudatus*. Male: back reddish or olive-brown; a tuft of hair on the sides of the neck, the chest, and the sides of the greyish abdomen rusty, or orange-coloured. Female: above yellowish, or greyish-brown; beneath lighter. In some individuals from Malacca, the flying membrane is of a light reddish-brown.

4. *Pachysoma Diardii*: Back greyish-brown; abdomen greyish, brown on the sides.

5. *Pachysoma Duvaucellii*: pale greyish-brown.

The following is a description of a new-born. The upper part of the head, the nape of the neck, the back and the posterior surface of the humerus and femur, were covered with dense, soft, short hairs, of a dark greyish-brown; all the rest of the body was naked, of a greyish-black colour. The eyelids were not yet separated. The joints of the bones of the extremities were cartilaginous. The nails of the thumb and index were developed, but the feet and nails of the toes had already attained the size of the adult. The tongue was considerably extensile. The teeth present were:

$$\text{Incis. } \frac{4}{4} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Mol. } \frac{2 \cdot 2}{2 \cdot 2}$$

Entire length, one and four-eighth of an inch, of which the slightly projecting tail two-eighth inch. Extent of the flying membrane, six and four-eighth inches.

In an individual measuring two and four-eighth inches in length, with an extent of the membrane of nine inches, the face and the lower parts, excepting the throat, had become scantily covered with light brownish-grey, short hairs. The eyelids were separated. The shoulder, elbow, hip, and knee-joints, had become ossified, the other joints still remaining cartilaginous.

INSECTIVORA.

GEN.—TUPAIA, *Raffles*.TUPAIA FERRUGINEA, *Raffles*.

SYN.—“Tupai Press,” *Raffles* and *Horsfield*.

Cladobates ferrugineus, F. Cuv. apud *Schinz*.

Sorex Glis, *Diard* and *Duvaucel*.

Glisorex ferruginea, *Desmarest*.

Hylogale ferruginea, *Temminck*.

Herpestes, *Calcutta Journ. Nat. Hist.**

* Vol. II, p. 458, Pl. XIII $\frac{1}{2}$. The explanation accompanying this figure is as follows: “Searching for Col. Farquhar’s drawing of *Rhizomys Sumatrensis* already referred to, I found in the Society a drawing of a bushy-tailed *Herpestes*, differing merely from Mr. Hodgson’s *Gulo Urva*, in having the tail of one uniform colour with the body, without the yellow tip. There is no name or letter on the drawing to shew

• “Tupai tana” of the Malays of Pinang.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Sumatra, Java, Borneo.

The young of this very numerous species in hilly jungle, is easily tamed, and becomes familiar with its feeder, though towards strangers it retains its original mistrust, which in mature age is scarcely reclaimable. In a state of nature it lives singly or in pairs, fiercely attacking intruders of its own species. When several are confined together, they fight each other, or jointly attack and destroy the weakest. The natural food is mixed insectivorous and frugivorous. In confinement, individuals may be fed exclusively on either, though preference is evinced for insects; and eggs, fish, and earth-worms, are equally relished. A short peculiar tremulous whistling sound, often heard by calls and answers, in the Malayan jungle, marks their pleasurable emotions, as for instance, on the appearance of food, while the contrary is expressed by shrill protracted cries. Their disposition is very restless, and their great agility enables them to perform the most extraordinary bounds in all directions, in which exercise they spend the day, till night sends them to sleep in their rudely constructed lairs in the highest branches of trees. At times they will sit on their haunches, holding their food between the fore-legs, and after feeding, they smooth the head and face with both fore-paws, and lick the lips and palms. They are also fond of water, both to drink and to bathe in. The female usually produces one young; she has four mammae, the anterior pair of which is situated on the lower lateral part of the chest, the posterior on the side of the abdomen. On the lower surface of the tongue, the frenum is continued to within a short distance of the apex in a raised line, on either side of which the skin is thickened, fringed at the edges, and thus presenting a rudimentary sublingual appendage, somewhat similar

from whence it came, and to prevent its following the fate of Colonel Farquhar's *Rhizomys*, we here afford a copy of it.” Pl. XIII $\frac{1}{2}$ represents no *Herpestes*: the elongated muzzle, the proximity of the large eye to the ear, which is exposed, and not hidden by the hairs of the cheek, are characters foreign to every known species of *Herpestes*. The draughtsman has very correctly represented a *Tupaia*, and the drawing, reappearing as a *Herpestes* in the *Calcutta Journal of Natural History*, has, by Mr. Blyth, been traced to be the original of Pl. IX, *Asiatic Researches*, Vol. XIV, where it properly accompanies the description of *Sorex Glis*, (i. e. *Tupaia ferruginea*) of MM. Diard and Duvaucel.

to that observed in *Nycticebus tardigradus*; though in *Tupaia ferruginea* the fringes of the margin only are free, the rest being attached to the tongue, but easily detached by a knife. The lateral raised lines of the palms and soles, the posterior part of the first phalanges, and the third phalanx (second of the thumbs,) which is widened into a small soft disk, in fact all the points which rest upon the ground, are studded with little transversely curved ridges or duplicatures, similar to those observed under the toes, of some of the *Geckotidæ*, which fully account for the precision, the 'aplomb,' with which these animals perform the astounding leaps from below, barely touching with the soles the point d'appui above. In a cage, the Tupai will continue for hours vaulting from below, back downwards, poise itself for an instant, continuing back downwards under the horizontal roof, and regain the point of starting, and thus describe a circle—the diameter of which may be three to four times the length of the animal,—in far shorter time than is required for the description. In a young male, measuring from the nose to the root of the tail seven and three-fourth inches, the tail six and a half inches, the dimensions of the intestinal canal were:

Small Intestines,	3 feet 4½ inch.; diameter	$\frac{1}{8}$ inch.
Large ditto,	0 „ 3¾ „ „	$\frac{1}{5}$ „
Cæcum,	0 „ 0¾ „ „	$\frac{1}{16}$ „
Costæ veræ: 8 pairs; spuræ: 5 pairs = 13 pairs.		

This species* is infested with a Tick of the following description: *Ixodes Tupaia*. Body suboval, shining dark-green olive; scaly plate, palpi casing the pointed sucker, and the legs: pale reddish-brown. Length, when swollen, three-eighth inch.

GEN.—GYMNURA, *Raffles*.

GYMNURA RAFFLESII, Vigors and Horsfield.

SYN.—*Viverra gymnura*, *Raffles*.

“Tikus ámbang búlan,” *Raffles*.

HAB.—*Malacca*.

Sumatra, Singapore.

In a district not distant from Malacca, the animal is said to be numerous, though not to be seen in other localities.

* Single light coloured individuals occur with the back, limbs and abdomen greyish, whitish, or isabella.

GEN.—*Sorex*, Linné.

Sorex murinus, Linné.*

SYN.—*Sorex myosurus*, Pallas, apud Schinz.

Sorex caeruleus, Var, Raffles?

“Chinchorot” of the Malays of the Peninsula.

HAB.—*Pinang*.

Java.

Dark brownish-grey above; beneath light brownish-grey. Feet and tail flesh-coloured in the living animal, changing to cinereous after death. In the young the colour is more of a bluish-grey, slightly mixed with brown on the back. Length of the head and body five and half inches; tail three inches.

Incis. $\frac{2}{2}$ Canin. $\frac{0}{0}$ Molar, $\frac{8.8}{5.5}$

The present differs from the ‘Musk Shrew’ of Bengal (“Choochundr,”) in its proportionally broader, more developed, and from the head more diverging ear, which characters also distinguish it from *Sorex nigrescens*, Gray, which it somewhat resembles in its colours. The smell of musk, emitted by the adult animal, and which in the young is barely perceptible, is much less intense than that of the Bengal Musk Shrew.

CARNIVORA.

GEN.—*Ursus*, Linné

Helarctos, Horsfield.

Helarctos Malayanus, Horsfield.

SYN.—*Ursus Malayanus*, Raffles and Horsfield.

“Brúang” of the Malays.

HAB.—*Malayan Peninsula*.

Sumatra, Tenasserim Provinces, Assam, Nipal.

Colour of the young: snout and lips pale ferrugineous. Head, back, and outside of the limbs black, mixed with pale rust colour, in consequence of many of the black hairs having the point, or a part next to the

* The following Syn. are given in Gray’s *List of Mam. in British Museum*: *Sorex myosurus*, Pallas. Geoff. Ann. Mus. XVII. *S. Sonneratii*, and *S. giganteus*, I. Geoff. Mem. XV. *S. indicus*, Geoff. Mem. Mus. 1. *S. capensis*, Geoff. Ann. Mus. XVII. *S. Pitorides*, Shaw, Mus. Lever. *S. caeruleus*, Shaw, Zool. *S. crassicaudatus*, Licht. Säugeth. *S. nepalensis*, Hodgson. *S. moschatus*, Robinson, Assam. Olivier, Voy. Buffon. H. N. Suppl. VII.

point, of the latter colour. Ears, tail, paws, and inner side of the extremities shining black. The somewhat woolly hairs of the abdomen are faintly marked with ferrugineous, and are mixed with longer stiff black hairs. As observed by Schinz, the mark on the breast is very variable in its form. It may be compared to a crescent, assuming according to the smaller or greater breadth of the limbs, the shape of the letter U, of a horse-shoe, or a heart. In the living animal it is of a pale rust, or orange colour, in some individuals with a few small blackish spots, fading after death to a yellowish-white. A very old male presented the following dentition :

$$\text{Incis. } \frac{6}{6} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Molar, } \frac{4 : 4 (2+2)}{6 : 6 (3+3)}$$

In a young female, three feet in length, the intestinal canal measured fifteen feet. It had neither cæcum nor valve to mark the transition. She had ten grinders in either jaw, of which four were spurious, six true.

GEN.—ARCTICTIS, *Temminck*.

ARCTICTIS BINTURONG, *Fischer*.

SYN.—*Viverra*? *Binturong*, *Raffles*.

Paradoxurus albifrons, *F. Cuvier*.

Ictides ater, *F. Cuvier*.

Arctictis penicillata, *Temminck*.

Ictides ater, *Blainv. Calcutta Journ. of Nat. Hist.**

“Unturong” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Tenasserim, Arracan, Assam, Bhotan, Nipal.

Java and Sumatra are quoted by M. Schinz, but neither Dr. Horsfield, Sir S. Raffles, nor M. Temminck, (*Discours Preliminaire, Fauna Japonica*,) mention the *Binturong* as inhabiting either of the two islands.

* In the 3rd Vol. of *Calcutta Journ. of Nat. Hist.* p. 410, occurs the following passage : “The *Binturong* was first discovered in Java, but the first notice of its existence on the continent of India will be found in the second volume of this Journal, p. 457,” (sic!) “&c.” Sir Stamford Raffles, who published the first account of this animal, distinctly states, that it was discovered at Malacca, (not *Java*, as erroneously stated,) by Major Farquhar, and Malacca is situated on the continent of India as well as Tenasserim. The fact of its inhabiting *Bhotan*, was according to Cuvier (*Règne Animal*,) first made known by Duvauzel, and the author of the article “*Ictides*” in the *Penny Cyclopædia*, 1838, gives Mr. Hodgson’s authority of the *Binturong*’s inhabiting Nipal, (Kachar, though they occasionally occur in the central region of Nipal.)

The general colour of either sex is black, sprinkled on the body and extremities with pale ferrugineous, produced by some of the hairs having a part next to the point of that colour. In both sexes nearly all the hairs of the head, face and throat are thus marked, which communicates to these parts a whitish or greyish appearance. In the young of either sex there is a faint trace of a white spot over the eyes. The long ear-tufts are always black, the margin of the auricle being either white, or pale rust-coloured. The tail is black, but the hairs of the anterior or basal half, are whitish at the root, or in some uniformly of that colour. The pupil is vertically contracted by the influence of light; the iris is of a beautiful Van Dyke brown. In its habits the *Binturong* is both arboreal and terrestrial, and nocturnal, sleeping till the sun is below the horizon, when it displays great agility in searching for smaller quadrupeds, birds, fishes, earth-worms, insects and fruit. The howl is loud, resembling that of some of the Malayan *Paradoxuri*. The young are easily tamed, but the old animal retains its natural fierceness. Between the anus and penis is situated a large pyriform gland, exceeding two inches in length, partially divided by a deep naked fossa, commencing from the latter organ. The gland secretes a light-brown oily fluid, of a peculiar intense, but not fetid or sickening odour. In a young male, measuring from the nose to the root of the tail, two feet three and five-eighth inches, the tail two feet two and a half inches, the intestines were of the following dimensions:

Small Intestines.	..	..	7 feet 11 inches.
Large ditto,	..	..	1 foot 10 inches.
Cæcum,	..	..	0 $\frac{1}{2}$ inch.

The circumference of the small intestines about seven-eighth inches; of the large but little more, but the rectum was thickened two inches in circumference.

The short cæcum is crescent-shaped, or lengthened pyriform. The stomach is remarkably lengthened cylindrical, the parietes much thickened towards pylorus. Oesophagus enters close to fundus ventriculi, in consequence of which there is but a slight difference between the curvatures.

Length along the greater curvature, .. 1 foot 2 inches.

 " " " smaller .. 1 " 1 "

The circumference from cardia round fundus ventriculi measured five and a half inches; round pylorus two six-eighth inches. Both the gall-bladder and the spleen presented a remarkably elongated shape. The former organ, lengthened pyriform, measured in length two inches; ductus cysticus two and a half inches. The spleen, tapering to a narrow point, was half an inch broad, and eight and a half inches in length. Costæ veræ, nine pairs; spuria, five pairs = fourteen pairs.

GEN.—MUSTELA, Linné.

PUTORIUS, Cuvier.

PUTORIUS NUDIPES, Fred. Cuvier.

SYN.—Mustela nudipes, Desmar. apud Schinz.

“Pulásan” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The muzzle and the soles of the feet are pale flesh-coloured. The animal is said to inhabit the densest jungle, and is most difficult to obtain.

MUSTELA, Cuvier.

MUSTELA FLAVIGULA, Boddaert.

SYN.—Viverra quadricolor, Shaw.

Marte à gorge dorée, Desmarest.

Mustela Hardwickii, Horsfield.

Martes flavigula, Hodgson, apud Gray.

“Anga Prao” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Nipal.

The Malayan individuals differ from those from Northern India, originally described, in having the fur shorter and less dense, the head pale-brown, the neck and back pale yellowish-brown, becoming darker towards the tail, which, as well as the posterior extremities, is black. The anterior extremities are greyish-brown; the feet and the streak behind the ear deep brown; the lips whitish; the throat and chest yellowish-white or ochreous; the scanty hairs of the abdomen pale brownish.

GEN.—LUTRA, Storr.

LUTRA NAIR, Fred. Cuvier.

SYN.—*Lutra indica*, Gray.

“Anjing Ayer” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

China, Bombay, South Mahratta Country.

LUTRA BARANG, Raffles.

SYN.—“Barang Barang” or “Ambrang,” Raffles.

Lutra leptonyx, Wagner, apud Schinz.

Lutra Simung, Schinz ?*

“Mumrang” or “Amrang” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The young are very playful, and soon become sufficiently domesticated to roam about the house, and to appear when called. Its voice is a short shrill whistling, not unlike the sound of the cricket, but stronger. Its food is not confined to fishes and crustacea; birds and insects are equally relished. The muzzle is hairy, but in the old animal the hairs become rubbed off. The Malayan individuals appear to attain to a greater size than the Sumatran, described by Raffles. An old male measured from the apex of the nose to the root of the tail two feet eight and a half inches; the tail one foot eight inches. In a young male two feet and two inches, and the tail one foot two-eighth of an inch in length, the simple intestinal canal measured nine feet and one inch, with a circumference throughout of about two and two-eighth inches. No cæcum. Each of the kidneys consisted of ten loosely connected glands.

AONYX, Lesson.

AONYX LEPTONYX, Gray: List.

SYN.—*Lutra leptonyx*, Horsfield.

Lutra cinerea, Illiger.

* In Schinz's diagnosis of *Lutra Simung* is said “ungvibus robustis falcularibus,” (“die Nägel an den Zehen sind stark und gekrümmt”) which if the passage refers to *Lutra leptonyx*, Horsfield, must be a mistake, as the original diagnosis expressly states “ungvibus brevibus sublamnaribus.” As Schinz describes *Lutra Barang* “ungvibus minutissimis obtusis” *Lutra leptonyx* is probably meant, and thus the one species is mistaken for the other.

Lutra perspicillata, Is. Geoff.

Mustela Lutra, Marsden.

Aonyx Horsfieldii, Gray.

Lutra Barang, apud Schinz?

"Anjing Ayer" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Singapore, Nipal.

This, as well as the two preceding species, inhabits numerously the banks of the Malayan rivers, and all are at times used by the Malays in river fishing.

GEN.—*CANIS*, Linné.

CUON, Hodgson.

CUON PRIMÆVUS, Hodgson.

SYN.—*Canis primævus*, Hodgson.*

Chrysæus primævus, Hamilton Smith.

Chrysæus soccatus, Cantor.

"Anjing útan" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Bengal, Nipal.

Some slight differences occur in the Malayan individuals. The inferior surface, the inside of the ears and limbs, the lips and throat, are of the same colour as the back, but much paler. A black carpal spot, like that of the wolf, is very distinct in the male, less so in the female. The young animal of either sex has a faint white spot with a few blackish bristles, situated nearly midway between the angle of the mouth and the ears. Of the wavy wool of the Buansu, the Malayan wild dog, inhabiting a tropical climate, has but a little on the inner side of, and immediately behind the ear; the posterior part of the abdomen is almost naked. The short bristles of the lips, cheeks, throat, and above the eyes, are all black. In habits, so fully described by Mr. Hodgson, and in size, the Malayan agrees with the Nipalese. In a young male, from

* Mr. Ogilby considers *Canis Dukhunensis*, Sykes, and *Canis primævus*, Hodgson, to be identical, and apparently not different from *C. sumatrensis*, Hardwicke, (*Mem. on the Mammalogy of the Himalayahs*, apud Royle.) Colonel Sykes, on the contrary, describes *C. Dukhunensis* as being "essentially distinct from *Canis Quao*, or *Sumatrensis*, Hardwicke."

the nose to the root of the tail two feet eight and a half inches in length ; the tail one foot, the intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	6 feet	2 inches.
Large, ditto, ..	..	..	..	0 „	10½ „
Cæcum,	..	..	..	0 „	4 „

The latter intestine is spiral, much widened at the origin.

Costæ veræ 8 pairs, spuria 5 pairs = 13 pairs.

The Malays mention another, black wild dog (“Anjing útan étam,”) as also inhabiting the densest jungle. A Hyena is also reported to occur on the Peninsula.

Mongrel curs, “pariah dogs,” of every description, infest every village, but apparently not uninhabited places, nor localities far distant from the dwellings of man. As they all may be said to be in a state of half domestication, and are of forms very different from the wild dog, which shuns the human presence, their origin cannot with certainty be traced to the Malayan Peninsula.

GEN.—VIVERRA, *Linné.*

VIVERRA ZIBETHA, *Linné.*

SYN.—Viverra undulata, Gray.

Viverra melanurus, Hodgson	} Apud Gray : List.
Viverra orientalis, Hodgson	
Viverra civettoides, Hodgson	
Undescribed Civet, McClelland	

“Tanggallong” of the Malays of the Peninsula.

HAB.—Pinang, Singapore, Malayan Peninsula.

Southern China, Siam, Bengal, Khasyah Hills, Nipal.

Judging by the comparatively few individuals observed in the Straits of Malacca, this species would appear to be far less numerous, than the following. Of several, the largest, which was a female, measured from the apex of the nose to the root of the tail two feet and eight inches ; the tail one foot eight and a half inches.

VIVERRA TANGALUNGA, Gray.

SYN.—Viverra Zibetha, Lin. apud Raffles.

“Tangalung,” Raffles.

Viverra Zibetha, Lin. apud Horsfield.

Viverra Zibetha, apud Fred. Cuvier.

Viverra Zibetha, Lin. apud Schinz.*

“Músang jebát” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Sumatra, Borneo, Celebes, Amboyna, Philippines.

This species is readily distinguished from *V. Zibetha* by a continuous longitudinal black band occupying the upper surface of the tail, the numerous irregular rings being separated only on its inferior half. (Gray : Proceed. Zool. Society, 1832, p. 63.) The number and distance of the half rings on the lower surface of the tail, vary in different individuals, some of which have either the entire tail, or the anterior half or third of the tail, thus marked, the rest being black. The very young animal is generally of a much darker ground colour than the adult, and the black marks are therefore less conspicuous. Under certain lights the colour appears uniformly black. *Viverra Tangalunga* and *Zibetha*, however similar in habits and general colours, neither live nor breed together. Placed side by side, the living animals present a marked dissimilarity of countenance, which although obvious to the eye, would be most difficult, if possible at all, to convey in words. The female has three pairs of Mammæ, and produces from one to three young. The Malays of the Peninsula distinguish by different names the *Zibetha* and the *Tangalunga*, but as they suppose the civet of the former species to be of better quality, perhaps because it is scarcer, they will frequently offer for sale individuals of the latter, exceedingly numerous species, imposing upon it the name of *V. Zibetha*: “Tanggalong” of the Peninsula. The largest individual of the present species observed, measured in length from the apex of the nose to the root of the tail three feet and one inch; the tail one foot five and a half inches. In a younger, a female, three feet five and a half inches in length, of which the tail one foot and one inch, the intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	7 feet 5 inches.
Large ditto,	..	..	..	0 „ 9 „
Cæcum,	..	..	..	0 „ 1 „

Costæ veræ, seven pairs; spuria, six pairs = thirteen pairs.

* The true *Viverra Zibetha*, Linné, is quoted by Schinz under the denominations of *V. bengalensis*, Hardwicke (?), and *V. melanura*, Hodgson.

VIVERRICULA, Hodgson.

VIVERRICULA MALACCENSIS.

SYN.—*Viverra malaccensis*, Gmelin.

Viverra Rasse, Horsfield.

Viverra Gunda, Buchanan Hamilton MSS.

Viverra indica, Geoffroy.

Viverra bengalensis, Gray : Illustr.

Viverra pallida, Gray : Illustr.

Genetta Manillensis, Eydoux.

HAB.—*Malayan Peninsula*.

China, Philippine Islands, Java, Singapore, Cochin-China, Tenasserim Provinces, Bengal, Nipal, Hindoostan, Dukhun, Bombay.

On the Malayan Peninsula this species appears to be more numerous than *V. Zibetha*; less so than *V. Tungalunga*, and in size inferior to either. The largest observed was three feet four inches in length, of which the tail one foot three and a half inches. In a male, measuring from the apex of the nose to the root of the tail, two feet and three-fourth of an inch, the tail one foot one inch, the dimensions of the intestinal canal were :

Small Intestines,	..	..	..	4 feet 0 inch.
Large ditto,	..	..	..	0 „ 8 „
Cæcum,..	..	..	..	0 „ 0 $\frac{3}{4}$ „

The three preceding species have the following characters in common—The pupil is vertical, oblong; the iris of a rich brown. They are arboreal as well as terrestrial, preying upon the smaller quadrupeds, birds, fish, crustacea, insects and fruit. Naturally very fierce, they are scarcely reclaimable except in youth, but with age the original disposition returns. Their voice is peculiar, hoarse and hissing.

GEN.—PRIONODON, *Horsfield*.

PRIONODON GRACILIS, Horsfield.

SYN.—*Viverra?* Linsang, Hardwicke.

Felis gracilis, Horsfield.

Viverra Hardwicke, Lesson.

Viverra gracilis, Desmarest, apud Schinz.

Linsang gracilis, Müller, apud Gray : List, and Schinz.

HAB.—*Malayan Peninsula.*

Java, Sumatra, Borneo, Siam.

The ground colour is buff, and the dark marks are of a deep snuff colour, inclining to black with purple reflection. Length from the apex of the nose to the root of the tail: one foot six inches, the tail one foot three six-eighth inches.

Mr. Rappa, for many years a dealer in objects of natural history at Malacca, who previously had been supplied with a figure and description of *Prionodon gracilis*, reported in a memorandum accompanying the specimen, that it had been captured in the jungle at some distance from Malacca. It was unknown to himself and to the natives. At first the animal was fierce and impatient of confinement, but by degrees it became very gentle and playful, and when subsequently suffered to leave the cage, it went in search of sparrows and other small birds, displaying great dexterity and unerring aim in stealthily leaping upon them. Fruit of every description it refused. Another younger individual was captured about the same time, but contrived to make its escape.

GEN.—*PARADOXURUS*, *Fred. Cuvier.*

PAGUMA, *Gray.*

PAGUMA LEUCOMYSTAX, *Gray: List?*

SYN.—*Paradoxurus leucomystax*, *Gray?*

Amblyodon auratus, *Jourdan?*

“*Músang búlan*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Singapore, Sumatra.

In a single individual observed, the hairs of the body, limbs and anterior third of the tail, are greyish-yellow at the base, next bright rust-coloured, with the apex shining black, which produces a mixture of ferruginous and black, the latter prevailing on the nape of the neck, middle line of the back, and the anterior third of the tail. The hairs of the vertex and the ridge of the nose are dark at the base, with yellowish points. The large oblique whitish spot in front of the ear, produced by uniformly whitish hairs, is on either side blended with the whitish vertex and ridge of the nose, and is continued down the sides of the neck, forming a large broad arrow-shaped mark. The orbits are dark brown, the face, lips and throat pale brown. The long rigid white

whiskers are mixed with a few shorter black bristles. The feet are dark brown, the posterior two-thirds of the tail uniformly black. The lower surface and the inner side of the extremities are pale ferruginous. From the apex of the nose to the root of the tail: two feet three inches, the tail one foot eight inches.

PAGUMA TRIVIRGATA, Gray: List.

SYN.—*Viverra trivirgata*, Reinwardt, Mus. Leyd.

Paradoxurus trivirgatus, Gray.

“Músang ákar” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Singapore, Tenasserim.

The ground colour varies from yellowish, or brownish, to blackish-grey. Fur short, peculiarly soft, silky. The dorsal streaks are either continued, undulated, (the central nearly always,) or composed of separate black spots. Some individuals have a short white streak on the ridge of the nose. The largest male measured from the apex of the nose to the root of the tail, two feet two and a half inches; the tail two feet three inches.

PARDOXURUS MUSANGA, Gray.

SYN.—*Viverra hermaphrodita*, Pallas, apud Schinz.

Viverra fasciata, Gmelin?

Viverra Musanga, Marsden, Raffles.

Musang bulan, Raffles.

Viverra Musanga, Var. *javanica*, Horsfield.

Ichneumon prehensilis, Buchanan Halmilton MSS.

Platyschista hermaphrodita, Otto

Paradoxurus Pallasii, Gray

Paradoxurus Crossii, Gray

Paradoxurus dubius, Gray

} apud Schinz.

Paradoxurus Musangöides, Gray.

Paradoxurus typus, apud Schlegel.

Paradoxurus felinus, Wagner, apud Schinz.

“Músang” or “Músang Pándan,” (when the tail is with white point: “Músang Búngkwang,”) of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Java, Sumatra, Borneo, Timor.

The ground colour and dorsal marks of this exceedingly numerous species are liable to considerable variations, the principal of which are noted by Schinz: individuals occur (probably of every species) with the apex of the tail white, with elongated white spots on the abdomen, with the tail spirally twisted. In most the dorsal marks become indistinct, or invisible in certain lights. The female has from one to three young, of colours similar to the adult, but less distinct, their fur is softer, somewhat woolly, mixed with longer stiff black hairs. The young is tamed without difficulty, and is sometimes kept in houses to destroy rats and mice. The *Paradoxuri* are in habits like the *Civets*. They have an elliptical pupil, vertically contracted by the influence of light. Their glandular secretion is of a peculiar, not civet or musk-like odour. The largest specimen of a great number, measured from the apex of the nose to the root of the tail two feet and half an inch; the tail one foot four and a half inches. In a male, measuring three feet one and a half inch in length, of which the tail one foot four and a half inches, the intestinal canal were of the following dimensions:—

Small Intestines,	5 feet 8 inches.
Large ditto,	0 „ 5 „
Cæcum,	0 „ 1½ „
Costæ veræ, seven pairs; spuræ, six pairs = 13 pairs.	

PARADOXURUS (?) DERBYANUS, Gray.

SYN.—Paradoxurus? Zebra, Gray.

Hemigalea Zebra, Jourdan.

Viverra Boiei, Müller.

“Musang Batu” or “Sangah Prao” of the Malays of the Peninsula.

HAB.—Malayan Peninsula.

Borneo.

The ground colour varies from pale ochreous to buff, and the dark marks in shape and number scarcely alike in any two individuals, from snuff colour to black. The species is apparently not numerous, and is celebrated among the Malays for its great agility. It is said chiefly to feed upon the larger birds, such as the *Argus* pheasant, which it will hunt down, following its prey till the strength of the latter is exhausted, when it falls an easy victim to the indefatigable pursuer. The slender vermiform make, the countenance and distribution of

colours ; the serrated, flattened false molars ; the soles, hairy between and under the toes, and slightly in the centre ; the somewhat removed thumb, are characters by which this animal differs from *Paradoxurus*, and forms a link between that genus and *Prionodon* in the same manner that *Viverricula* connects *Viverra* to *Prionodon*. The largest male observed, measured from the apex of the nose to the root of the tail two feet ; the tail one foot and four inches.

GEN.—CYNOGALE, *Gray*.

CYNOGALE BENNETTI, *Gray*.

SYN.—*Viverra* (Limictis) *carcharias*, *Blainville*.

Potamophilus barbatus, *Kuhl*.

Cynogale barbata, *Schinz*.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The very young, of which two individuals, a male and a female, were found with the mother, differ from the adult in having a very soft, silky, dense fur, mixed with longer hairs, which are black, except on the chest and abdomen, where the apex is silvery. Over the tarsus and on the upper surface of the feet some of the hairs have a subterminal white band, close to the black apex. The posterior margin of the ear is hairy and of a silvery colour. This animal appears to be of rare occurrence on the Malayan Peninsula, and the natives are consequently not acquainted with it. The largest male examined, measured from the apex of the nose to the root of the tail two feet three inches ; the tail eight inches.

GEN.—HERPESTES, *Illiger*.

HERPESTES JAVANICUS, *Desmarest*.

SYN.—*Ichneumon javanicus*, *Geoffroy*.

Mangusta javanica, *Horsfield*.

"*Garangan*," *Horsfield*.

HAB.—*Pinang, Malayan Peninsula*.

Java.

The species is numerous. The largest male measured from the apex of the nose to the root of the tail one foot four and a half inches ; the tail one foot one and a half inch.

HERPESTES AUROPUNCTATUS, Hodgson.

SYN.—*Mangusta auropunctata*, Hodgson.

Herpestes nepalensis, Gray.

Herpestes Edwardsii, apud Ogilby (?)

Herpestes javanica, Hodgson, apud Gray : List.

HAB.—*Malayan Peninsula*.

Bengal, Nipal, Scinde, Afghanistan.

This species somewhat resembles *H. javanicus*, but the ground colour is lighter, and the lower surface uniformly pale yellowish-grey; whereas in the former species it is similar to the back, or a shade paler. A single female observed, measured from the apex of the nose to the root of the tail one foot one inch; the tail nine inches.

HERPESTES GRISEUS, Desmarest.

SYN.—*Ichneumon griseus*, Geoffroy.

Mangouste de Malacca, F. Cuvier,

Mangusta malaccensis, Fischer,

Mangusta grisea, Fischer,

Herpestes Edwardsii, Fischer,

Mangusta Nyula, Hodgson,

Herpestes griseus, Nyool, apud Ogilby.

Herpestes pallidus, Schinz.

Forsan *H. nipalensis*, Gray, Var. apud Schinz.

HAB.—*Malayan Peninsula*.

Bengal, Hindustan, Scinde, Nipal.

The present differs from the other species not only by its grey colour, but by its broader head, particularly between the prominent eyes, and by its shorter, blunter nose, which places the eyes comparatively nearer to the muzzle. In a single female, measuring from the apex of the nose to the root of the tail one foot two and a half inches, the tail nine and a half inches; the intestinal canal was of the following dimensions:

Small Intestines,	..	..	..	3 feet 1½ inch.
Large ditto,	..	..	..	0 „ 5½ „
Cæcum,...	..	..	..	0 „ 1 „

By a contraction in the middle of the greater curvature, the stomach is distinctly separated into a cardiac and pyloric cavity.

HERPESTES BRACHYURUS, Gray.

SYN.—“Musang Túron” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

The largest male measured from the apex of the nose to the root of the tail one foot six and a half inches, the tail nine inches. It is distinguished from the other species, not only by its colours and comparatively short tail, but by its larger size and much more robust make.

GEN.—FELIS, Linné.

FELIS TIGRIS, Linné.

SYN.—Tigris regalis, Gray : List.

“Harímau” or “Rímau” of the Malays.

HAB.—*Malayan Peninsula.*

India.

Lieut. Colonel James Low has communicated the following denominations, by which the Malays of the Peninsula distinguish different varieties :

“Rímau Sípai,” reddish coated, striped.

“Rímau Bállu,” darker coloured.

“Daun Pínang,” reddish coated, without stripes.

“Tuppu Kassau,” darkish, without stripes, but with longer hairs than the others.

“Puntong Prun,” very dark, striped.

FELIS LEOPARDUS, Schreber.

SYN.—Felis Pardus, Linné, ?

Felis varia, Schreber,

Felis Panthera, Erxleben,

Felis chalybeata, Hermann,

Felis antiquorum, Fischer,

Felis fusca, Meyer,

Felis Nimr, Ehrenberg,

Leopardus varius, Gray : List.

Felis Leopardus, apud Schinz.

“Rímau Bítang” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

India.

} Apud Gray : List.

DARK VAR.

SYN.—*Felis melas*, Péron, apud Gray : List.

“ Rimau Kúmbang,”* of the Malays of the Peninsula.

The ground colour is a shining beetle-brown, mixed with white hairs, not however sufficiently to impart a grey appearance. The black spots become distinctly visible in certain lights only. The skin of a male killed at Malacca, measured from the nose to the root of the tail four feet four and a half inches, the tail two feet ten and a half inches.

The Leopards of the Malayan Peninsula appear to attain to a larger size, and to be more ferocious than is generally the case in India. Instances of their having killed and carried off Malays are on record.

FELIS MARMORATA, Martin.

SYN.—*Felis Diardii*, Fisher, apud Schinz.

Felis Diardii, apud Jardine. Tab. 21 and 22.

Leopardus marmoratus, Gray : List.

“ Rimau dáhan” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

The ground colour varies from rusty-grey, or fulvous, to grey, and the black markings are scarcely quite alike in any two individuals, nor is the extremity of the tail constantly black. The adult exceeds the size given in the original description ; a female measured from the apex of the nose to the root of the tail two feet half an inch ; the tail one foot nine inches. The species is numerous.

FELIS JAVANENSIS, Desmarest.

SYN.—*Felis javanensis*, Desmarest, apud Horsfield.

“ Kuwuk,” Horsfield.

<i>Felis minuta</i> , Temminck,	} Apud Schinz.
<i>Felis servalin</i> , Temminck,	
<i>Felis sumatrana</i> , Horsfield,	
<i>Felis undata</i> , Desmarest,	

* “ Kúmbang” signifies a beetle ; applied par excellence to a species of *Oryctes*, resembling *Scarabeus nasicornis*, Linné, which is very destructive to cocoa-nut plantations. “ Ríman Kúmbang,” Raffles, is by Schinz referred to *Felis Pardus*, Temminck, *Var. nigra*, Muller ; *Felis melas*, F. Cuvier, the habit. of which is said to be Java and Sumatra.

Felis Diardii, Griffith,
Leopardus javanensis, } Apud Gray : List.

“ Rímau ákar” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra ?

The ground colour in the Malayan individuals varies from pure grey to greyish brown or ferruginous. The largest adult male measured from the apex of the nose to the root of the tail one foot eleven and a half inches, the tail ten inches ; another of equal dimensions of the body had the tail eight inches in length. The intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	3 feet 8 inches.
Large,	..	..	..	0 9½ „
Cæcum,	..	..	..	0 1½ „

In the scansorial habits of this very numerous species originates its local denomination “ ákar,” signifying a climber as well as a root.

FELIS PLANICEPS, Vigors and Horsfield.

SYN.—*Chaus (?) planiceps*, Gray : List.

“ Kúching-útan,” or “ jálang” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Sumatra, Borneo.

The Malayan individuals of this apparently not numerous species differ from the Sumatran, originally described, in having the whitish throat, chest and abdomen, and the inner side of the limbs undulated with brown, transversal, interrupted bands. In none of the Malayan wild cats is the length of the tail more variable. In a male, measuring from the apex of the nose to the root of the tail two feet one and a half inch, the tail, consisting of twelve gradually diminishing caudal vertebræ, measured five and half inches ; in another, one foot ten and three-fourth inch in length from the nose to the root of the tail, the latter organ measured two inches, consisting of four slightly decreasing vertebræ, the last one of which was broad, flattened, and rounded at the posterior extremity. It is of most ferocious habits, and untameable. In the smaller individual the intestinal canal was of the following dimensions :

Small Intestines,	..	...	3 feet 6½ inches.
Large,	..	..	0 „ 5½ „
Cæcum,	..	..	0 „ 0⅝ „

FELIS DOMESTICA, Auct.

“Kúching” of the Malays.

The Malays, like most Muhamedans, are as partial to cats as they are the reverse to dogs. As observed by Sir S. Raffles, some of the Malayan, like the Madagascar, domesticated cats, have a short twisted or knobbed tail, others are tailless. Among those of a uniform colour, a light ashy and a bluish (or slaty-grey) variety, with single longer black hairs on the back and tail, are conspicuous. They frequently relapse from a state of domestication, resort to the jungle, and shun the presence of man.

RODENTIA.

SCIURIDÆ,

GEN.—SCIURUS, *Linné*.

SCIURUS BICOLOR, Sparrmann.

SYN.—Das javanische Eichhorn, Schreb.* apud Horsf.

Sciurus giganteus, McClelland MSS. } apud Horsfield, Proc.
Sciurus bicolor, Sparrmann, } Zool. Soc.

Sciurus madagascariensis, }
Sciurus macruroides, Hodgson, } apud Gray : List.

“Chingkráwah étam” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra, Borneo, Siam, Tenasserim, Assam, Nipal.

The original diagnosis will prevent misunderstanding as to the species under consideration. “Sciurus supra niger, infra fulvus, auriculis acutis imberbibus, palmarum ungve pollicari magno rotundato.” (Sparrmann, apud Horsfield.) The colour of the head, back, tail, outside of the extremities, and the feet, is intense shining black, the single hairs being blackish-grey at the root, those of the tail blackish-brown at the root. In some individuals the black hairs generally, in others those of the tail, or some part of the back only, have a broad subterminal band of bright cinnamon, or Indian red, which imparts a reddish tint to the general black colour. The mustachios, whiskers and the superciliary bristles are black; those of the throat and forearm are black in some,

* *Sciurus javensis*, Schreber, and *bicolor*, Sparrmann, apud Gray : List, is *Sciurus Leschenaultii*, Desmar. apud Horsfield. Syn. *S. hypoleucus*, Horsfield.

ferruginous, or with the apex of that colour, in others. The under-parts vary from a deep golden fulvous to isabella colour. Whatever be the prevailing shade, it is always most distinct on the lateral line, which, commencing from the cheeks, passes along the sides of the body. The fur of the lower parts of the body, and of the inside of the extremities, is much shorter, softer, and less dense, than that of the back. The single hairs are greyish, or blackish at the root, with the apex of the shade of yellow prevailing in the individual. Single long bristles, either uniformly, or partially black, or fulvous, appear on the chest and abdomen. The species, under the present garb, is very numerous in the Malayan forests and hills.

VAR. β , Horsfield.

“*Sciurus supra fuscus, varians a fusco-nigricante ad sordide fulvum, pilis velleris fulvis et canescentibus intermixtis, subtus fulvus vel pallide flavescens.*”—Horsfield.

SYN.—*Sciurus auriventer*, Is. Geoff. apud Schinz.

Sciurus aureiventer, Is. Geoff. apud Gray: List.

“Chingkráwah” or “Chingkráwah puteh” of the Malays of the Peninsula.

Single individuals. resembling the Javanese one figured in ‘*Zoological Researches in Java*,’ occur at Pinang, but there, as in Java, tawny of different shades, with a greyish cast, is more frequent. In some the head is of a darker colour, in others large spots of dark appear on the back, or the tail is above barred with dark. The upper part of the nose, a ring encircling the eyes, and the ears appear in all individuals to be of a darker brownish colour, and all have a more or less distinct large white spot on the anterior and upper part of the thigh. The back of the feet is either dark brown or fulvous. The palms, soles, mammæ and genital organs, are black in all. The single hairs of the back are greyish-brown at the root, darker than the apex, which imparts the general colour to the back. With the hairs of the tail the reverse is the case, the basal half being isabella or white; the apical darker. On the lower surface of the distichous tail, the roots of the hairs form a white line on either side of the vertebræ, which are covered with short, dark-brownish, or fulvous hairs. The under-parts of the body are of the same colours as those of the black-coated animal, but their roots are yellowish-white. The mustachios, whiskers, and other bristles, are

in all of a blackish-brown; but the single bristles of the abdomen are sometimes fulvous.

The black-coated individuals stand in a similar relation to the light-coloured varieties, as that in which the black-coloured *Hylobates Lar* stands to the light-coloured. Such differences of colour, wide no doubt, are of no uncommon occurrence among the Malayan Mammalia, and ought to be well considered by Zoologists, who have not the opportunity of studying the living animals.

This, as well as the rest of the Malayan squirrels, is capable of being tamed to a certain extent, and evinces attachment to those who feed them, but the appearance of a strange person, animal, or even an unusual sound, startles them, and recalls their natural shyness. The largest of a great number, measured from the apex of the nose to the root of the tail one foot six inches; the tail one foot nine and a half inches.

The intestinal canal was of the following dimensions:

Small Intestines,	..	..	..	9 feet 6 inches.
Large ditto,	..	..	..	4 „ 9 „
Cæcum,	..	..	..	1 „ 2 „

SCIURUS RAFFLESII, Vigors and Horsfield.

SYN.—*Sciurus rufogularis*, Gray.

Sciurus rufoniger, Gray.

Sciurus Prevostii, Desmar. apud Schinz.

“Túpai baláng” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Borneo, China* (Canton.)

* China is the habit. assigned to *Sciurus rufogularis*, Gray. Without doubting the authenticity, it is perhaps as well to observe, that skins of the more showy animals and birds of India, Malacca, and the Indian Archipelago, are offered for sale as indigenous productions in the shops of Canton and Macao. Skins of *Halcyon Smyrnenensis* for instance, and other birds from different parts of India, are bought up by the Chinese merchants of our colonies in the Straits of Malacca, who annually, on Chinese Junks, ship quantities of considerable value to China, where they are manufactured into fans and artificial flowers. In a list of birds, contained in a collection of Chinese productions, exhibited in London in 1842, Mr. H. E. Strickland observes in his communication to the Zoological Society, that some of them appear to have been imported from Malacca. Skins and other parts of a host of animals, from the most distant parts of Asia, form items in the Chinese Pharmacopeia. On my visits to Chinese Dispensaries in China and in our Malayan Colonies, I have been shewn horns of rhinoceros and deer, tusks of the Duyong, heads of Bucer, tortoise-shells, and well preserved skins of *Trigonocephalus Blomhoffii*, from Japan; Ammonites and other fossils, *cum multis aliis*, all supposed to possess specific virtues, and accordingly prescribed by Chinese Medical practitioners.

This species, numerous in the Malayan countries, occurs with the following individual variations of colour :

Cheeks and throat iron-grey, shoulders uniformly, or mixed with red. (*Sciurus rufogularis*, Gray. *Mag. Nat. Hist.* 1842, p. 263.)

The cheeks are sometimes dark brown, or ferruginous.

In some the white lateral line commences from the side of the nose, passing over the cheeks, the side of the neck, and over the shoulder. The lateral line is either pure white, more or less distinct, or mixed with single longer hairs with black apex.

Some have a short black line immediately below the white; in others there is above the latter a grizzled line, sometimes continued over the outside of the thigh. The tail is seldom uniformly black, frequently partially black, reddish or grizzled, owing to the apex of the hairs being white. The tuft is frequently reddish or rust-coloured.

The feet are sometimes white or pale ferruginous.

The Museum of the Asiatic Society possesses a specimen from Java, differing from *Sciurus rufoniger*, Gray, in having the tail grizzled instead of black. *Sciurus redimitus*, Van der Boon, is probably another variety of *S. Rafflesii*.

A young male, about a fortnight in confinement, after having finished his usual meal of cocoa-nut, seized and devoured an *Iora typhia*, which had just been shot, and happened to be placed within reach. Sparrows and other smaller birds were subsequently eaten, and apparently relished.

The largest male measured from the apex of the nose to the root of the tail eleven and a half inches, the tail one foot two inches.

SCIURUS HIPPURUS, Is. Geoffroy.

SYN.—*Sciurus erythræus*, Pallas (?)
Sciurus caudatus, McClelland ? } Apud Gray : List.
Sciurus anomalus, Kuhl.

Sciurus rufogaster, Gray.

Sciurus castaneoventris, Gray.

“Tupai Jinjang,” “Ummu,” or “Jau” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Assam, China (Canton).

The ground colour of the Malayan individuals differs but slightly, according to the more red or yellow rust colour of the bands of the hairs. The anterior part of the tail above is of the same colour as the back, the rest is either uniformly black, reddish, or with transverse bands, or has the tuft of that colour. The colour of the ears is brownish in some, but generally of the leaden grey, grizzled colour of the head, cheeks, chin and outside of the limbs. The feet are black or slightly grizzled.

The largest individuals of this numerous species measure from the apex of the nose to the root of the tail one foot; the tail one foot and half inch.

SCIURUS VITTATUS, Raffles.

SYN.—Tupai, Raffles.

Sciurus bivittatus, Raffles. Desmar. }
Ecureuil Toupai, F. Cuvier, } Apud Horsfield.

Macroxus Toupai, Lesson, apud Gray: List.

Sciurus flavimanus, Is. Geoffroy, apud Schinz.

“Túpai” of the Malays of the Peninsula.

HAB.—*Singapore, Pinang, Malayan Peninsula.*

Sumatra, Borneo, Canton.

This is the most numerous species in the Straits of Malacca, the largest individuals measuring from the apex of the nose to the root of the tail eleven inches, the tail eleven inches.

SCIURUS NIGROVITTATUS, Horsfield.

SYN.—*Sciurus griseiventer*, Is. Geoffroy, apud Schinz.

HAB.—*Malayan Peninsula.*

Java, Sumatra, Borneo, Canton.

Not numerous; the largest individual observed, a female, measured from the apex of the nose to the root of the tail nine inches; the tail eight and half inches.

SCIURUS TENUIS, Horsfield.

SYN.—*Sciurus modestus*, S. Müller?

HAB.—*Singapore, Malayan Peninsula.*

Java, Sumatra, Borneo, Canton.

Of two individuals observed, the larger, a male, measured from the apex of the nose to the root of the tail six inches; the tail seven inches.

SCIURUS LATICAUDATUS, Diard, Var.

SYN.—*Sciurus laticaudatus*, Diard, apud S. Müller ?*

HAB.—*Malayan Peninsula.*

The present squirrel differs from the diagnosis of *Sciurus laticaudatus* from the West-coast of Borneo, (communicated in *Natuur en Geneeskundig Archief, &c. II Jaarg. I Afl.* p. 87,) in having neither the first nor the fifth molar of the upper jaw very large. Both are of nearly equal size, and much smaller than the rest. The following is a description of the Malayan animal.

The shape of the head is depressed, elongated, conical, gradually attenuated towards the laterally compressed nose. The whole outline, the slender form, and general colours, render the animal strikingly similar to *Tupaia ferruginea*. The eyes are large, brilliant, dark; the ears large, oval, with smooth short hairs; the mouth is small, the upper incisors are very minute, the lower slender, flattened, and almost straight; the black mustachios, whiskers, superciliary and gular bristles, and the few white ones of the forearm, are all shorter than the head; the muzzle hairy, leaving the margins of the small, and at the apex laterally pierced nostrils, naked. The limbs and feet slender; the nailless tubercle of the thumb rudimentary, barely perceptible in the living animal. The claws are small, sharp, compressed, whitish.

The colour of the head, back, outside of the limbs and feet, is a rich rusty-red, mixed with shining black, particularly on the occiput, the back and the feet, less on the sides, where the ferruginous prevails; the throat, chest, abdomen and innerside of the limbs, whitish; in some individuals pale-yellowish. The fur is soft and delicate. The separate hairs are leaden-grey at the base, shining black, or with a broad subterminal ferruginous band. The tail is shorter than the body, distichous, broadest in the middle, attenuated at the root, terminating in a thin tuft. It may be compared to a feather, black on each side of the quill, successively ferruginous, again black, margined with buff.

* In the *List of Mammalia in the British Museum* occurs a genus: *Rhinosciurus*, Gray, and a species *R. tupaoides*, Gray, Syn. *Sciurus laticaudatus*, Müller ?? Generic or specific characters being neither given nor referred to, it is impossible in India to decide whether the specimen in the British Museum thus labelled, is identical with the animal here characterised.

Such is the succession of the bands on the separate hairs. This organ is less full and ornamental than in the generality of squirrels. The species is apparently not numerous; the largest out of five examined, a female, was of the following dimensions:

Length from the apex of the nose to the root of the tail,	$10 \frac{6}{8}$	inch.
„ of the tail,	$6 \frac{4}{8}$	„
„ of the head,	$2 \frac{3}{8}$	„
„ from the apex of the nose to the anter. angle of the eye,	$1 \frac{2}{8}$	„
„ from the posterior angle of the eye to the ear,	$0 \frac{5}{8}$	„
Breadth above the apex of the nose,	$0 \frac{1}{8}$	„
„ between the anterior angles of the eyes,	$0 \frac{7}{8}$	„
„ between the ears,	$0 \frac{6}{8}$	„
Diameter of the head at vertex,	1	inch

Its habits in confinement presented nothing remarkable.

GEN.—PTEROMYS, Cuvier.

PTEROMYS NITIDUS, Geoffroy.

SYN.—Sciurus petaurista, Lin. apud Cuvier?

Sciurus petaurista, Chin Krawa, Raffles?

Pteromys albiventer, Gray Illustr.

“Túpai Térbang” or “Kúbin” of the Malays of the Peninsula.

HAB.—Singapore, Pinang, Malayan Peninsula.

Java, Sumatra, Borneo.

The part of the head anterior to the ears, the cheeks, the chest, and the abdomen, are white in some individuals of either sex, one of which is figured in Hardwicke's *Illustrations of Indian Zoology*, under the denomination of *Pteromys albiventer*, Gray.

The black, or dark-brown eyelids, nose, chin, feet and tip of the tail, appear to be constant characters. The shade, and intensity of the red colour is liable to considerable variations.* In the very young, there is a short black stripe behind the ears; and the posterior part of the back and anterior half of the tail are shining black, from each separate hair having the apex of that colour. Traces of these characters occur in some adult individuals. This species is very numerous in the Malayan countries. It is not strictly nocturnal, for it is frequently seen abroad

* In an individual from Malacca, the back was very dark Indian-red, with a few dashes of pure white. The identity of the species is however doubtful.

during the day. It is particularly fond of the Durian, the fruit of *Durio Zibethinus*, Linné. The flying squirrel has this partiality, in common with various other animals, as monkeys, Pteropi and Paradoxuri; nay, the Malays assert, that they have to watch this, their favourite fruit, against tigers.

In a female, measuring from the extremity of the nose to the root of the tail, one foot six and half inches, the tail one foot nine inches, the intestinal canal was of the following dimensions:

Small Intestines,	..	..	..	7 feet 4½ inches.
Large, ..	..	..	..	5 „ 2 „
Cæcum,..	..	..	..	2 „ 4 „

SCIUROPTERUS, Fred. Cuvier.

SCIUROPTERUS HORSFIELDII, Waterhouse,

SYN.—*Pteromys aurantiacus*, Wagner, apud Gray: List.

HAB.—*Malayan Peninsula*.

Java? Sumatra?

A single skin, brought from Kéddah, measured from the apex of the nose to the root of the tail eight and three-eighth inches; the tail eleven inches.

SCIUROPTERUS GENIBARBIS.

SYN.—*Pteromys genibarbis*, Horsfield.

“Kechubu” Horsfield.

HAB.—*Malayan Peninsula*.

Java.

Of two, the larger, a male, measured from the apex of the nose to the root of the tail seven and half inches; the tail seven inches.

MURIDÆ.

GEN.—*MUS*, Linné.

MUS BANDICOTA, Bechstein.

SYN.— <i>Mus giganteus</i> , Hardwicke,	} Apud Gray: List.
<i>Mus malabaricus</i> , Shaw,	
<i>Mus perchal</i> , Shaw,	
<i>Mus Ieria</i> , Buchan. Ham. MS.	
<i>Mus nemorivagus</i> , Hodgson,	

Tikus besár of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula*.

Southern Mahratta Country, Bengal, Nipal.

MUS DECUMANUS, Pallas.

SYN.—*Mus javanus*, Pallas, apud Schinz.

Mus norvegicus, Brisson, apud Gray : List.

“*Tikus*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula, Pinang.*

Cosmopolita.

MUS SETIFER, Horsfield.

SYN.—“*Tikus virok*,” Horsfield.

Mus giganteus, Temminck, apud Gray.

HAB.—*Pinang.*

Java, Sumatra, Borneo, Van Diemen’s Land.

The larger of two individuals, captured in gardens, measured head and body, ten and one-eighth inches; the tail seven and four-eighth inches.

MUS RUFESCENS, Gray.

SYN.—*Mus flavescens*, Elliot, }
Mus rufus, Elliot, } Apud Gray : List.

HAB.—*Pinang.*

Dharwar, Madras, Bengal, Arracan.

In the young, the brown bristles are fewer, and leave the lead-coloured under-fur more apparent. The colour of the abdomen is paler yellowish-grey than in the adult. The species is numerous at Pinang in out-houses. In the largest observed, the head and body measured seven and six-eighth inches; the tail (mutilated,) four and two-eighth inches.

MUS MUSCULUS, Linné?

SYN.—“*Tikus rúma*” of the Malays.

HAB.—*Pinang.*

In colours, this slightly differs from the European mouse, the upper parts being a mixture of shining grey and tawny. The separate hairs are leaden-grey at the base, then tawny with black apex; some are longer and uniformly dark brown. Beneath pale ash. The ears are large, more than one-half of the length of the head, with very short hairs, rounded, blackish. Toes, palms and soles, whitish. Tail slender, dark-grey, with very short appressed brown hairs. Length of the head and body, two and five-eighth inches: tail two and four-eighth inches.

GEN.—RHIZOMYS, Gray.

RHIZOMYS SUMATRENSIS, Gray.

SYN.—*Mus sumatrensis*, Raffles.

“Dekan,” Raffles.

Hypudeus de Sumatra, Temm.	} Apud Gray: List.
Nyctocleptes Dekan, Temm.	
Spalax javanus, Cuvier,	

Rhizomys chinensis, Gray, apud Schinz.

Rhizomys cinereus, McClelland.*

Rhizomys Dekan, Schinz.

“Tikus búlow” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

China, Moulmein, Assam.

Although the animal was first described in Sir Stamford Raffles' catalogue of collections, made in Sumatra, the author distinctly states that it was forwarded from Malacca by Major Farquhar; nor does it appear to inhabit Sumatra, although the specific name would lead one to suppose that such is the case. The colour of the adult is liable to individual variations, from grey of different shades to isabella or silvery-buff. The separate hairs are mostly of the colour prevailing in the individual, mixed with single dark-brown hairs with whitish apex, particularly on the vertex, continuing along the centre part of the back. On the nose, anterior part of the head, and on the cheeks, the hairs are of a pale rust colour. On the vertex some white hairs form either a spot or a short line of that colour. The scanty hairs of the abdomen are all of a pale-greyish or isabella colour. The mustachios, whiskers, superciliar and gular bristles, are either of a pale-brown or buff colour. The young are above of a dark-grey, with a brown streak on the vertex and

* The description of this supposed species (*Calcutta Journal of Nat. Hist. Vol. II. p. 456, Pl. XIV.*) states, “There are four toes to each fore-foot, and five to each hind-foot.” The draughtsman of *Pl. XIV*, “*Rhizomys cinereus*,” has, at all events, observed, that all the feet are *five-toed*, however incorrectly he has represented the animal. Another error occurs in the description, viz: “Sir Stamford Raffles describes a species of Bamboo Rat found in Sumatra by Colonel Farquhar,” &c. Sir S. Raffles' words are these: “*MUS SUMATRENSIS*. A drawing and specimen of an animal, which appears related to the *Mus Pilorides*, was forwarded from Malacca” (*not Sumatra*, as erroneously asserted) “by Major Farquhar, to the Asiatic Society at the same time with the Binturong. I am informed by him that it is not uncommon at Malacca, and is perhaps to be found in most parts of the Malay Peninsula,” &c. *Transact. Linn. Society, Vol. XIII. Part II.*

back ; beneath pale-grey. The forehead, nose, temples, and cheeks, are ferruginous. The adult, like some squirrels and rats, is subject to enlargement of the scrotum. In confinement, it is very savage, scarcely tameable. The length of the tail varies from about one-third to little more than one-fourth of the length of the body. It is blackish, or brownish ; the apex whitish. The largest male, examined, measured from the apex of the nose to the root of the tail one foot seven and a half inches ; the tail five and a half inches. The female, in size and colours equalling the male, has ten mammæ, viz. two axillary, and three inguinal pairs.

GEN.—HYSTRIX, Cuvier.

HYSTRIX LONGICAUDA, Marsden.

SYN.—*Acanthion javanicum*, Fred. Cuvier ?

Hystrix brevispinosus, Schinz.*

“ Bábi Lándak ” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Borneo.

Sir Stamford Raffles has pointed out the inaccuracy of Marsden's figure, representing the fore-feet with five toes, instead of with four, and a rudimentary thumb with a flat nail. The figure also has a few mane-like long bristles on the head, whereas the mustachios are situated on the side of the nose, the whiskers below the ear, and one or two bristles above the eye. In colours, this species resembles *Hystrix leucurus*, Sykes, from which it differs in the absence of the long mane-like bristles of the head and neck. Although single, scattered, thin, flexible spines, upwards of twelve inches in length, occur on the posterior part of the back, the majority of inflexible spines are much shorter than in *Hystrix leucurus* or *H. cristatus*, and are either pure white, or with a blackish band in the medial portion. The short, blackish, slightly iridescent spines of the neck, anterior part of the back, the limbs, and abdomen, are generally grooved on the upper surface. The short white pedunculated tubes of the posterior part of the tail are at first closed, terminating in a short spine, which latter wears off, leaving the tubes open. The pubes

* In “ *Nachträge zum 2ten. Bande*,” this species is supposed to be identical with, and substituted for *Atherura fasciculata*, although a very correct description is given of both.

are disposed in a wreath of stiff bristles, frequently of a deep rust colour. The epidermis of this species, as well as of *Atherura* is remarkably thin and liable to be torn. Beneath the skin appears a fatty tissue, upwards of an inch in thickness. The anterior molars are slightly larger than the rest. Viewed from above, *in situ*, the crown of the anterior lower molar of either side presents the form of two letters S, facing each other (S2). In a foetus,—of which the head measures two and one-eighth inches, the body four and three-eighth inches, the tail one inch in length,—the whole of the body, and the anterior half of the tail have numerous short hairs, disposed on separate transverse lines of six to eight distant black hairs, becoming longer on the posterior part of the back and sides. The posterior part of the tail has longer and closer hairs. In a female, measuring from the apex of the nose to the root of the tail two feet five inches, the tail four inches; the intestinal canal was of the following dimensions :

Small Intestines,..	..	..	..	21 feet	6 inches.
Large ditto,	..	..	..	5 „	10 „
Cæcum, ..	..	..	..	1 „	7 „

The stomach is of a heart-shaped outline, with thin membranes externally smooth, internally with a few longitudinal rugæ near the narrow fundus.

The species is numerous, and, as it is considered a delicacy by the Chinese population, is frequently brought to market.

GEN.—*ATHERURA*, Cuvier.

ATHERURA FASCICULATA, Cuvier.

SYN.—*Hystrix fasciculata*, Lin. apud Cuvier.*

Hystrix orientalis, Brisson, apud Gmelin.

Hystrix macroura, Linné.

Porc-epic de Malacca, Buffon.

Hystrix fasciculata, Shaw, apud Raffles.

Mus fasciculatus, Desmarest.

Hystrix fasciculata, Linné, apud Gray : Illust.†

* No species of that name occurs in *Systema Naturæ*, Ed. XIII. Gmelin. 1788, but *Hystrix macroura* is described “cauda longitudine corporis” (??) “apice fasciculo pilorum” &c.

† In the figure, the anterior foot has one toe too many, the animal having four toes and a rudimentary flat-nailed thumb. Nor is the back of the hind foot naked, unless indeed become so by accident.

Catalogue of Mammalia inhabiting

Acanthion javanicum, F. Cuv.

Atherurus fasciculatus, Schinz.

Atherurus macrourus, Schinz.

“*Lándak*” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra, Borneo.

The nose, lips, forehead, and back of the feet, are covered with greyish-brown hairs. The body and limbs at the root of the spine, are covered with dense soft silky hairs, grey on the upper parts, and silvery on the abdomen. Single longer flexible spines, white with a dark central band, are scattered over the back. The anterior part of the tail is, like the back, covered with flat-grooved spines, white at the root, then slightly iridescent brown, and frequently with white apex. The centre part of the tail is scaly, with very short spines between the scales. The posterior part is white; with white or silvery, flexible, and in length gradually increasing, spines, which Buffon has aptly compared to narrow slips of irregularly cut parchment. The pubes are of a deep rust colour.

This species is very numerous in the Malayan valleys and hills. In fretful habits, and in its food, it resembles the preceding porcupine, like which, it is carried to the market at Pinang and Malacca, where as many as twenty to thirty may frequently be seen. In a male, measuring from the apex of the nose to the root of the tail one foot ten inches, the tail ten inches; the intestinal canal was of the following dimensions:

Small Intestines,	..	..	19 feet 4 $\frac{1}{2}$ inches.
Large,..	..	..	5 „ 3 „
Cæcum,	..	..	1 „ 3 „

The stomach is of a general outline, resembling that of *H. longicauda*, but it differs in having an external deep vertical sulcus, dividing the stomach in to a pyloric and a cardiac portion, which latter presents 6 to 7 deep oblique sulci. The membranes of the stomach are thick and muscular. Internally the cardiac portion is transversally divided by six or seven ridges, corresponding to the external sulci, intersected by numerous concentric rugæ. The pyloric portion, separated from the cardiac by the rugæ produced by the external vertical sulcus, is much smoother, and has but few rugæ.

EDENTATA,

GEN.—MANIS, Linné.

MANIS JAVANICA, Desmarest.

SYN.—*Manis pentadactyla*, Lin. apud Raffles,

Manis aspera, Sundeval.

M. quinquedactyla, Raffles, apud Gray : List.

“ Pengóling” or “ Tangíling” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra, Borneo.

The series of dorsal scales vary in individuals from 16 to 19. The number of central dorsal vary from 20 to 22 ; the central and the marginal caudal from 26 to 29 : in the young all the scales are finely lineated and the rounded apex only is smooth. With age the lines become obliterated on the exposed surface of the scales, between which appear a few long whitish bristles. The very young animal corresponds to the description of *Manis aspera*, Sundeval. The eyelids, the margins of the ears, and the scaleless parts, except the palms and soles, are scantily provided with short whitish hairs. The two pectoral mammæ are situated at a short distance from the axilla. Its habits present nothing different from those of *Manis crassicaudata* (*M. pentadactyla*, Linné), of which an interesting account is communicated by Lieut. R. S. Tickell in *Journal Asiatic Society*, vol. XI. 1842. p. 221.

The present species, although numerous in rocky situations, is not often captured, as it is seldom abroad till after sunset. The largest male measured from the apex of the nose to the root of the tail one foot nine and a half inches ; the tail one foot eight inches. In a younger male, the entire length of which was one foot eleven inches ; the intestinal canal was of the following dimensions :

Small Intestines, 8 feet 4 inches.

Large ditto, 0 „ 6 „

Cæcum is rudimentary, indicated by a slight, yet distinct widening of the intestine. The stomach is capacious, the pyloric region thickened and gizzard-like. On the external surface, where the greater curvature begins to ascend, is situated a small (one inch in length, one and three-eighth in breadth) triangular, externally gyrated, glandular body, firmly attached to the stomach, but not communicating with the cavity. Its

external appearance might be compared to that of a crest of ostrich feathers. The narrowed apex, towards the pylorus, is provided with a small, thick, rounded and wrinkled opening, surrounded by concentric fibres, leading by a common, short, cylindrical duct to the broader cavity, which latter is divided by two longitudinal parietes into three separate portions. If a tube is introduced into the common duct, the air injected will simultaneously fill all three portions of the cavity, but if the tube is inserted into any one of the three separate portions, the air will fill that particular portion, leaving the two others collapsed. The interior surface of this organ secretes a whitish mucus. Adjoining the common opening, from ten to eleven small rounded glands commence, arranged on a line towards the pylorus. Each gland has, in its centre, a minute wrinkled opening, leading into a small cavity secreting mucus.

The stomach was extended by the remains (heads and legs,) of a prodigious quantity of large black ants, inhabiting the hills. The contents of the stomach were involved in mucus, deeply tinged with bile, and among them appeared five small rounded fragments of granite. Another individual expired after 10 days confinement, during which period it took no food, although it was repeatedly placed among swarms of the black and red ants, so excessively numerous in the valley of Pinang. Water it always took when offered, lapping it up with the tongue in the same manner that serpents drink.

Costæ veræ 8 pairs; spuræ 7 pairs = 15 pairs. The ensiform process of the os sternum is greatly elongated, terminating in a broad, rounded, thin cartilaginous plate.

PACHYDERMATA.

PROBOSCOIDEA.

GEN.—ELEPHAS, *Linné*.

ELEPHAS INDICUS, *Linné*.

SYN.—“Gajah” of the Malays.

HAB.—*Malayan Peninsula*.

India, Burma, Siam, Ceylon, Sumatra, Borneo.

Elephants are very numerous on the Malayan Peninsula. They may be procured at the following rates :—

“ For an elephant 4 feet 6 inches high, ..	120 Dollars.
Ditto, 5 „ 3 „ ..	200 „
Ditto, 6 „ 0 „ ..	220 „
Ditto, 6 „ 9 „ ..	400 „
Ditto, 7 „ 6 „ ..	420 „

Those exceeding this height are paid for at an advance on the last mentioned rate of 20 dollars for one foot six inches. If above eight feet and three inches, then an addition of 40 dollars for each one foot six inches is charged. Elephants ten feet six inches in height are taken by the Siamese to the Capital, and it is not permitted to sell them. The Keddah chiefs used formerly to breed elephants, a speculation rarely, if ever, attempted elsewhere. Coromandel Native Traders were, until late years, constantly in the habit of loading vessels with elephants for that Coast.” (Extract from Lieut. Colonel James Low’s “ *Dissertation*” &c.)

ORDINARIA.

GEN.—SUS, *Linné*.

SUS INDICUS, Schinz.

SYN.—SUS SCROFA, *Linné*, apud Elliot.

Sus indicus,	} Apud Gray: List.
Sus Scropha, Hodgson,	
Sus vittatus, Schlegel.	
Sus cristatus, Wagner, apud Schinz.	

“ Babi útan” of the Malays of the Peninsula.

HAB.—Malayan Peninsula, Pinang, Singapore, Lencay Islands.

Bengal, Nipal, Southern Mahratta Country.

The difference between the Indian and the German wild hog (*Sus Scrofa ferus*, Lin.) have been pointed out by W. Elliot, Esq. (*Madras Journal*, vol. X. 1839, p. 219.) The colour of the adult is brownish-black, scantily covered with black hairs, of which few retain the infantile yellowish sub-terminal band. Besides the black recumbent mane of the occiput and back, the whiskers and bristles above and below the eye, there is a bundle of long black bristles on the throat. The hairs of the throat and chest are reversed. The tail is scantily covered with short hairs, the apex compressed, with long

lateral bristles, like those of the elephant, arranged like the wings of an arrow. The young is more hairy, with the plurality of hairs tawny or fulvous, some with black root and apex, which, as they are more or less mixed with black hairs, produce on the sides of the body saturated fulvous stripes. The hairs of the throat, chest, abdomen, and elbows, (in the two latter places very long,) are black at the basal, and white at the apical half. Wild hogs are exceedingly numerous on the Peninsula, and most of the Malayan Islands. The largest boar examined measured from the apex of the nose to the root of the tail, five feet; the tail one foot. The stomach of a young boar, examined shortly after it had been speared, was extended with food, principally consisting of the remains of a very large coleopterous larva, some small seeds of different kinds, leaves, grass and roots.

SUS SCROFA, VAR. SINENSIS, Linné.

SYN.—“Babi” of the Malays.

Introduced by the Chinese settlers.

GEN.—RHINOCEROS, Linné.

RHINOCEROS UNICORNIS, Linné.

SYN.—Rhinoceros indicus, Cuvier.

Rhinoceros asiaticus, Blumenbach.

Rhinoceros inermis, Lesson.

“Bádak” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Bengal, Assam, Nipal.

RHINOCEROS SONDAICUS, Cuvier.

SYN.—Rhinoceros sondaicus, Cuvier, } Apud Horsfield.
“Warak,” “Bádak,”

Rhinoceros javanensis, F. Cuvier, apud Schinz.

HAB.—*Malayan Peninsula.*

Java.

This, as well as the former species, appears to be numerous on the Malayan Peninsula.

A *two-horned* Rhinoceros is stated by the Malays to inhabit, but rarely to leave, the densest jungle. The Museum of the Asiatic Society possesses a skull, and also a head with the skin on, of *Rhinoceros Sumatranus*, Raffles, from the Tenasserim Provinces, in which locality the existence of the species has been recorded by Dr. Helfer and Mr. Blyth. This fact would seem to corroborate the statement of the Malays, and the habitat of *Rhinoceros Sumatranus* may reasonably be expected to be hereafter found to extend over the neighbouring Malayan Peninsula. As such, it has indeed been enumerated by Capt. Begbie, the author of "*Malayan Peninsula*," &c. *Madras*, 1834. In Lieut. Col. Low's *History of Tenasserim* (Journal Royal Asiatic Society, vol. 3. 1836.) is figured the head of a young Rhinoceros, which, from the considerable protuberance between the eyes, appears to represent a two-horned, probably the present, species.

GEN.—TAPIRUS, *Linné*.

TAPIRUS MALAYANUS, Raffles.

SYN.—*Tapirus malayanus*, apud Horsfield.

Tapirus indicus, Fred. Cuvier.

Tapirus sumatranus, Gray.

Me des Chinois, Remusat, young? apud Gray: List.

Tapirus bicolor, Wagner, apud Schinz.

"Bádak," "Kúda Ayer," "Tennú" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The body of a newborn male, found in Province Wellesley in August 1844, was shortly after its death carried over to Pinang. As described by Colonel Farquhar, it was of a beautiful black velvet colour, with purple reflections, with numerous small, and other larger, irregular spots on the body, arranged in longitudinal stripes, above of a rich gamboge, beneath, and on the innerside of the extremities, paler yellow. The under-lip was white. The shrivelled remains of the black funiculus umbilicalis were upwards of four inches in length. The fur very short, dense, and velvety. The separate hairs, of either of the two prevailing colours, slightly curly.

DIMENSIONS.

Length from the apex of the nose to the root of the tail,	1 foot 10 inch.
„ of the head,	0 „ 7 „
„ of the tail,	0 „ $1\frac{2}{8}$ „
„ of the ear,	0 „ $1\frac{6}{8}$ „
Diameter of the head from vertex,	0 „ 5 „
Height of the shoulder,	0 „ $8\frac{2}{8}$ „
„ „ „ haunch,	0 „ 9 „

The animal, from which a sketch was taken on its arrival at Pinang, was the property of the Rev. R. Panting, A. M. The skin, imperfectly preserved, has lately been deposited in the Museum of the Asiatic Society.

On the 16th of May 1845, I obtained a living young female Tapir, captured in Keddah a few days previously. Though still in its infantile garb, it was older than the preceding. The ground colour was a brownish-black, like worn-out velvet; the spots, stripes, and the posterior part of the abdomen were of a dirty-white. The separate hairs were longer and curly; the hairy ears retained numerous white spots on the margins and external surface. The lips were blackish, with numerous short distant bristles, which also appeared round the nostrils, on the ridge of the nose, above and below the eyes, on the cheeks and on the throat. Two black mammæ were situated between the hind legs, three and half inches behind the large naked cicatrix of Funiculus umbilicalis.

DIMENSIONS.

Length from the apex of the nose to the root of the tail,	3 feet $4\frac{3}{8}$ inch.
„ of the head,	1 „ 0 „
„ of the tail,	0 „ $1\frac{2}{8}$ „
„ of the ear,	0 „ $5\frac{4}{8}$ „
Diameter of the head from vertex,	0 „ $5\frac{4}{8}$ „
Height of the shoulder,	1 „ 4 „
„ „ „ haunch,	1 „ 6 „
Greatest circumference round the body,	2 „ 6 „
Circumference at the root of the ear,	0 „ 6 „

DENTITION.

Incis. $\frac{6}{6}$ Canin. $\frac{0.0}{1.1}$ Molar, $\frac{3.3}{3.3}$

From the first, although fresh from its native wilds, this young Tapir shewed a remarkably gentle disposition. The day-time it spent in sleeping in a dark recess of the portico of my house, though it would rouse itself if noticed. Towards sunset it became lively, would bathe, feed, saunter abroad, and with its lengthened nose examine objects in the way. Within a few days after its arrival, it commenced to exhibit a marked partiality to the society of man, not indeed to its keeper in particular, whom it scarcely had discrimination enough to distinguish, but to any body who happened to notice or caress it. Towards sunset, it would follow a servant on the green in front of the house, and punctually imitate his movements, whether standing, walking, or running. If the man suddenly hid himself, the Tapir would hasten to the spot where it had lost sight of its leader, look about in all directions, and, if unsuccessful in discovering him, express its disappointment by a peculiar loud whistling. On the re-appearance of the man, it expressed its pleasure by rubbing its side against his legs, running between them, occasionally giving out a short singular sound, resembling that produced when the larger wood-peckers tap the trees, but more sonorous. When of an evening it heard the voices of people in the verandah above the portico, it exhibited strong marks of impatience, till let loose, when of its own accord it would, awkwardly enough, ascend a flight of stairs leading to the verandah. It would then quietly lie down at their feet, and by stretching its limbs and shaking its head, express the satisfaction it derived from being caressed; and it was only by compulsion that it could be made to leave the company. Its food consisted of plantains, pine-apples, mangustins, jambu, leaves of *Ficus pipul*, sugar-cane, and boiled rice, of which latter it was particularly fond, if mixed with a little salt. Its drink was water, and also milk and cocoa-nut oil, which latter taste the Tapir possesses in common with the O'rang-útan. It delighted in bathing, and was otherwise cleanly. When roaming about the garden, (its walk was like that of the elephant :) it would select a spot with soft earth, and like a cat form with its hind legs a small excavation, and

again cover it. The whole body has a peculiar, and by no means offensive exhalation, somewhat resembling that noted of *Arctictis Binturong*. Indeed, this is so tenacious, that although the skin of the individual above described has been preserved more than a twelve month, and kept in a strongly camphorated case, the odour is still perceptible.

On the 27th of June 1845, the subject of the preceding notice expired after two days' illness, from inflammation of the lungs, brought on by the strong southerly winds, prevailing throughout the Straits of Malacca during the season, which in man produce a slight influenza, in animals frequently terminating fatally. The few adult Tapirs, which occasionally have been kept in confinement by residents at Malacca, have acquired the character of being hardy animals. During the short period that the present lived in my possession, no perceptible change appeared in its growth, but a striking alteration took place in its colours. Nearly all the white spots on the head, nape of the neck, and back of the ears, gradually disappeared, and the upper part only of the margin of the ears remained white, which colour it retains in the adult animal. On the posterior part of the back and sides, the black and white stripes were in a state of progressing obliteration, their hairs had faded to a brownish colour, and were about being replaced by a shorter and less dense fur of the fresh white hairs, which were to form the characteristic permanent white mark, already appearing in outline, when death terminated the unfinished process of nature.

Vertebræ; cervical seven, of which the atlas and epistrophæus are the largest; dorsal twenty; lumbar four; sacral seven; caudal three.

Sternum. The anterior extremity cartilaginous, sharply keeled, arched, continued over manubrium, composed of two rounded angularly-joined pieces, as far as the second pair of ribs; corpus composed of five pieces, of which the two posterior, in a pair, are connected by cartilage.

Costæ veræ, eight pairs; spuria, twelve pairs = twenty pairs; the last spurious rib is rudimentary, and absent on the left side.

Femur, five and two-eighth inches long; the large bony sub-trochanteric process, described by Sir Everard Home, is developed, though partly cartilaginous, measuring one inch in length at the base.

Liver of moderate size, each lobe divided into two portions of nearly equal size.

Gall-bladder; none.

Spleen ; tongue-shaped, flattened, with cutting margins, seven and half inches in length, one and six-eighth in breadth.

Pancreas ; in a state not to admit of accurate examination.

Kidneys ; three and six-eighth inches in length ; one and six-eighth in breadth.

Renes succenturiati ; none.

Urinary bladder ; very large.

Stomach ; capacious. Its dimensions in the state in which it appeared, distended with food, were—

Length along the smaller curvature,	0 feet 5 $\frac{2}{8}$ inch.
„ „ greater, „	1 „ 9 $\frac{1}{8}$ „
Circumference from cardia round fundus, ..	1 „ 0 „
„ round pylorus,	0 „ 3 $\frac{1}{2}$ „

The internal surface smooth, villous.

Where the duodenum joins the pylorus, it is considerably widened.

Length of the intestinal canal :

Small Intestines,	27 feet 7 inches.
Large, „	6 „ 4 „
Cæcum,	0 „ 6 „
Average circumference of small,	2 $\frac{3}{8}$ „
„ „ large,	3 $\frac{1}{2}$ „

Cæcum sacculated, with a longitudinal band on either side. Distended with fæces as it appeared, the greatest circumference close to the fundus was one foot one and half inch.

In the adult Tapir dissected by Sir E. Home, and which was according to Mr. Yarrell eight feet in length, the relative proportion between the length of the intestinal canal and that of the body, was as eleven to one. In the present young female, the relative length of the intestinal canal is proportionally less than in the adult, being less than as ten to one.

SOLIDUNGULA.

GEN.—EQUUS, *Linné.*

EQUUS CABALLUS, *Linné.*

The horse, “Kuda” of the Malays, appears not to be indigenous in the Peninsula. The few ponies, which the wealthier use for ordinary purposes, are imported either from Siam, Burma, or Sumatra. The Malays either travel by water, or prefer the elephant as a locomotive more dignified than the horse.

RUMINANTIA.

GEN.—*Moschus*, Linné.

TRAGULUS, Brisson.

TRAGULUS KANCHIL, Gray : List.

SYN.—Chevrotain adulte, } Buffon, apud Gray.
 Chevrotain de Java, }

Javan Musk, Shaw.

Moschus Palandok, Marsden.*Moschus Kanchil*, Raffles.*Pelandok*, Raffles,*Moschus fulviventer*, Gray.

“Kanchil” or “Pelándok” of the Malays of the Peninsula.

HAB.—Singapore, Pinang, Lancavy Islands, Malayan Peninsula.

Sumatra, Java.

In some individuals the back is nearly black. The colour and distribution of the marks of the chest and abdomen are also liable to individual variations, one of which gave rise to the supposed species: *Moschus fulviventer*. The animal is by the Malays indiscriminately denominated “Káncil” and “Pelándok;” the latter denomination is sometimes *par excellence* applied to the young, and this circumstance in all probability gave rise to the supposed species *Moschus Pelandok*. The species is astonishingly numerous. In Prince of Wales’ Island, any number may be procured within a short notice, at the rate of one Spanish dollar per dozen. Knowing the partiality of these deer to the leaves of the sweet potato plant (*Convolvulus batatas*), the Malays either use traps, baited with this vegetable, or lie in ambush in moon-light nights in fields where it is cultivated, and disable the intruders by throwing sticks at their legs. In confinement, in its native climate, the animal becomes rather delicate, though it occasionally survives, and even breeds. The female has four mammæ, and one or two young at the time. The new-born measures eight and six-eighth inches in length, of which the head is three inches, the tail one inch. The skin of the upper parts is of a pale blackish colour, scantily covered with short, fine, brown hairs. The abdomen and inner side of the limbs are pale yellow; the throat and chest have the dark marks of the adult, but paler. The largest adults measure from the apex of the nose to the root of the tail, one foot six and half inches; the tail three inches in length.

TRAGULUS JAVANICUS, Pallas.

SYN.—*Moschus javanicus*, Gmelin.

Moschus javanicus, Pallas, apud Raffles.

Napu, Raffles.

Moschus indicus, Gmelin, }
Cervus javanicus, Osbek, } Apud Gray.

Moschus Napu, Fred Cuvier.

“*Nápu*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Java, Borneo.

On the Malayan Peninsula, the species appears to be far less numerous than the preceding. The canines of the female are very small. The four mammæ are situated at the posterior part of the abdomen, a little in front of the hind legs. The anterior pair are half an inch apart; the posterior two-eighth of an inch apart. The two pairs are half an inch distant from each other. In an adult female, measuring from the apex of the nose to the root of the tail two feet, four and two-eighth inches; the tail five inches: the intestinal canal was of the following dimensions:

Small Intestines,	13 feet 6 inches.
Large ditto,	7 „ 10 „
Cæcum,	0 „ 6 „

The gall-bladder is very large; immediately behind it is situated the right kidney.

GEN.—CERVUS, *Linné*.

STYLOCEROS, Hamilton Smith.

STYLOCEROS MUNTJAK, H. Smith.

SYN.—*Chevreuil des Indes*, Allamand.

Cervus Muntjak, Zimmerman, apud Horsfield, Sykes and Elliot.

Cervus Muntjak, Boddaert,

Cervus vaginalis, Boddaert,

Cervus Muntjak, Schreber,

Cervus Muntjak, Marsden,

Cervus moschatus, Blainville,

Cervus subcornutus, Blainville,

Cervus Muntjak? Shreb. apud Raffles,

Cervus Muntjak, Desmarest,

Cervus moschus, Desmarest,

} Apud Horsfield.

Cervus aureus, Ham. Smith,
Cervus Philippinus, Ham. Smith,
Cervus albipes, Fred. Cuvier,
Cervus Ratwa, Hodgson,

} Apud Gray : List.

Muntjacus vaginalis, Gray : List.

Cervus Muntiac, Linné, apud Schinz.*

"Kídang" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Banka, Borneo, Tenasserim, Nipal, Assam, Bengal, South Mahratta Country, Dukhun.

In a young male, measuring from the apex of the nose to the root of the tail three feet and one inch, the tail seven inches; the intestinal canal was of the following dimensions :

Small Intestines,	13 feet 10 inches.
Large,	22 „ 1 „
Cæcum,	0 „ 9 „

The right lobe of the liver lies in contact with the right kidney; the spleen with the left.

Gall-bladder; none.

AXIS, Hamilton Smith.

AXIS MACULATUS, Hamilton Smith.

SYN.—Axis, Plinius.

Cervus axis, Erxleben, apud Gmelin.

Cervus nudipalpebra, Ogilby, (black Var.)
Axis major, Hodgson,
Axis minor, Hodgson,

} Apud Gray : List.

"Rúsa Búnga" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula, Pinang*.

Sumatra, Bengal, Assam, Nipal, Southern Mahratta Country, Ceylon.

* In "Nachträge zum 2ten. Bande," the author suggests that six distinct species are supposed to lie hid under the denomination of *Cervus Muntiac*, viz :

1. *Cervus styloceros*, Schinz, Syn. *C. Muntiac*, Lin. apud Ogilby. Hab. Himalayah.

2. *Cervus Ratwa*, Hodgson. Hab. Himalayah.

3. *Cervus albipes*, F. Cuvier. Hab. India.

4. *Cervus Muntjac*, Raffles and Horsfield. Hab. Java, Sumatra, Banka, Borneo.

5. *Cervus Reevesii*, Ogilby. Hab. China.

6. *Cervus antisiensis*, Pucheran. Hab. Andes.

Sir Stamford Raffles thinks it probable that the Axis in Sumatra has been introduced from Bengal. It is numerous in Keddah, and at present in Pinang. But it did not inhabit Prince of Wales' Island till one of the last Governors of the late Presidency took the trouble of importing from Bengal some pairs, which were kept in the park adjoining Government House, (Suffolk House.) When the Presidency of Prince of Wales' Island was abolished, and with it all its paraphernalia, except the titles of as many of its officers as were necessary to the continuance of H. M. Court of Judicature, the deer of the quondam Governor's park found their way into the jungle, where they have multiplied to a prodigious extent.

RUSA, Hamilton Smith.

RUSA EQUINA, Hamilton Smith.

SYN.—*Cervus equinus*, Cuvier.

Cervus Rusa, Raffles.

Rusa etam or *Kumbang*, Raffles.

"Rúsa" or "Rúsa étam" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula, Pinang.*

Sumatra, Borneo.

The Malayan individuals correspond with the description given by Sir S. Raffles of *Cervus Rusa*. The lips are whitish; the posterior part of the lower, sometimes dark-brown. Round the eyes and the lachrymal sinus, on the side of the forehead, root of the ears, and on the throat, the hairs are either uniformly pale ferruginous, or have a subterminal band of that colour, the effect of which is to impart a pale rusty tint to these parts. Normally, each horn has three antlers, of which the lower or anterior, commencing from the burr, is directed outwards till towards the apex, which turns slightly inward. The second and outward turned antler commences at the root of the third, and is the shortest of the three. The third is directed inwards, and is the longest of the three. In the number, direction, and size of the antlers, numerous individual variations occur.

According to Mr. Blyth's observations, *Cervus Hippelaphus* has, normally, the third antler much longer than the second; *Cervus Aristotelis* has much larger and more divergent horns, of which the second and third antlers are about equal. Considering the similarity of colours

and size of *Cervus equinus*, *Hippelaphus* and *Aristotelis*, Mr. Elliot is probably right in considering all three as varieties of the great Indian stag, described by Aristotle under the designation of *Hippelaphus*. (*Madras Journal*, 1839. p. 220.), and *Cervus Peronii*, Cuvier—*Cerf du Timor*—may probably be added as a fourth variety.

PANOLIA, Gray : List.

PANOLIA ACUTICORNIS, Gray : List ?

SYN.—*Cervus frontalis*, McClelland ?

Cervus lyratus, Schinz ?

HAB.—*Malayan Peninsula*.

A single skull of a stag, killed in Keddah, has the horns so like those of the Munneepore animal, that the species might be taken to be identical, but that the Malays assert theirs to be maned, and of a dark colour, with white spots, like the *Axis*. This stag is further described as being extremely wary, and therefore seldom seen but on heights inaccessible to man. The skull is of an old male, with the teeth, canines in particular, much ground.

GEN.—ANTILOPE, Linné.

NÆMORHEDUS, Hamilton Smith.

NÆMORHEDUS SUMATRENSIS, Hamilton Smith.

SYN.—Kambing utan, Marsden.

Antilope sumatrensis, Pennant, apud Raffles.

Camktan, Fred. Cuvier.

Antilope interscapularis, Lichtenstein, apud Schinz.

“Kámbing útan” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Tenasserim.

It appears to be numerous on the Malayan Peninsula, but exceedingly difficult to obtain, as it frequents the steepest hilly localities, and is very shy and active.

GEN.—BOS, Linné.

BOS GOUR, Trail.

SYN.—*Bos Gaurus*, Ham. Smith.

Bison Gaurus, Ham. Smith.

Bos aculeatus, Wagler.

The Bison, Low: Hist. of Tenasserim.

Bos (Bibos) cavifrons, Hodgson, apud Elliot.

Bos frontalis, Lambert, apud Gray: List. (??)

“Sápi útan” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Tenasserim, Hindustan, Assam, Nipal, Southern Mahratta Country.

Numerous in the Malayan Peninsula.

BOS TAURUS, VAR. *INDICUS*, Linné.

SYN.—“Sápi” (S. jántan, Bull; S. betína, Cow) of the Malays of the Peninsula.

Although this kind of cattle is plentifully bred in some of the Malayan countries, it is not in general use, and is less numerous than the buffalo.

BUBALUS, Hamilton Smith.

BUBALUS ARNEE, Hamilton Smith.

SYN.—*Bos indicus*, Plinius.

Bos bubalus, Brisson.

Bos arnee, Shaw.

Bubalus ferus Indicus, Hodgson, apud Gray: List.

Bubalus Buffelus, Gray: List.

“Karbau” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Tenasserim, Southern China.

The wild buffalo is reported, but apparently without proof, to be indigenous in the Malayan Peninsula. Domesticated, it is very plentiful, and is the principal draft-cattle employed by the Malays and the Chinese settlers. The black-coloured, apparently the hardier, is preferred by the Malays; the reddish-white, freckled with brown, is the greater favourite of the Chinese. Both are very slow, and as observed by Lieut. Col. Low, delicate, and liable to sudden attacks of disease if worked in the sun.

CETACEA.

HERBIVORA.

GEN.—HALICORE, *Illiger*.

HALICORE INDICUS, F. Cuvier.

SYN.—Dugon, Buffon.

Trichechus Dugong, Erxleben.

Halicornia cetacea, Illiger.

Halicornia Dugong, Cuvier, apud Raffles.

Halicornia Tabernaculorum, Rüppell.

Dugongus marinus, Tiedemann, apud Schinz.

“Duyong” or “Parampúan Laut” of the Malays of the Peninsula.

HAB.—Singapore, Malayan Peninsula.

Sumatra, Philippine, Molucca and Sunda Islands, New Holland, Red Sea.

The Duyong appears not to be numerous at Singapore, still less so to the Northward, and has but in few instances been observed in Kwála Mùda, the mouth of the river, which forms the northern boundary of Province Wellesley.

ORDINARIA.

GEN.—DELPHINUS, *Linné*.

DELPHINUS PLUMBEUS, Dussumier.

SYN.—Delphinus malayanus, Lesson, apud Cuvier.

“Parampúan Laut” of the Malays of the Peninsula.

HAB.—Coasts of Pinang.

Malabar Coast.

The species, although very numerous, and rather heavy in its movements, is rarely captured, except by chance in fishing stakes. The stomach, of a single young individual observed, contained remains of small fishes, apparently *Clupea*, and *Glyphisodon caelestinus*, Cuvier.

[Extracted from the Journal of the Asiatic Society, Nos. 171 and 172, Vol. xv.]

NUMERICAL LIST OF MAMMALIA *inhabiting the Malayan Peninsula and Islands,*
and other localities.

1	<i>Hylobates lar</i> , Ogilby.	Malayan Peninsula,	Siam, Burma, Tenasserim.
2	<i>Hylobates agilis</i> , F. Cuvier.	Malayan Peninsula,	Sumatra.
3	<i>Semnopithecus obscurus</i> , Reid.	Malayan Peninsula, Pinang, Singapore.	
4	<i>Semnopithecus albocinctus</i> , Schinz.	Malayan Peninsula,	Tenasserim.
5	<i>Semnopithecus cristatus</i> , Horsfield.	Pinang, Malayan Peninsula,	Sumatra, Borneo, Banka.
6	<i>Semnopithecus femoralis</i> , Horsfield.	Malayan Peninsula,	Borneo, Sumatra? Java?
7	<i>Cercopithecus cynomolgus</i> , Ogilby.	Pinang, Malayan Peninsula,	Sumatra, Java, Banka, Borneo, Celebes, Timor, Tenasserim, Nicobars.
8	<i>Papio nemestrinus</i> , Ogilby.	Pinang, Malayan Peninsula,	Sumatra, Borneo.
9	<i>Nycticebus tardigradus</i> , Waterhouse.	Pinang, Malayan Peninsula,	Java, Siam, Arracan, Tenasserim, Bengal, Silhet, Assam.
10	<i>Galeopithecus Temminckii</i> , Waterhouse.	Malayan Peninsula and Islands,	Pelew Islands, Borneo, Java, Sumatra, Siam.
11	<i>Rhinopoma Hardwickii</i> , Gray.	Malayan Peninsula,	Southern Mahratta country, Calcutta, Allahabad, Agra, Mirzapore.
12	<i>Megaderma spasma</i> , Geoffroy.	Pinang, Singapore, Malayan Peninsula,	Ternate, Java.
13	<i>Nyctinomus tenuis</i> , Horsfield.	Malayan Peninsula,	Borneo, Java, Sumatra.
14	<i>Taphozous melanopogon</i> , Temminck.	Pulo Tikus, Lancávy, Malayan Peninsula,	Java, Caves of Kanner.
15	<i>Taphozous saccolaimus</i> , Temminck.	Pinang,	Celebes, Borneo, Java, Sumatra, Southern India.
16	<i>Rhinolophus affinis</i> , Horsfield.	Pinang,	Java.
17	<i>Hipposideros diadema</i> , Gray?	Pinang, Malayan Peninsula,	Timor.
18	<i>Hipposideros nobilis</i> , Gray.	Pinang, Malayan Peninsula,	Amboyna, Timor, Java, Sumatra.
19	<i>Hipposideros vulgaris</i> , Gray.	Pinang,	Java.
20	<i>Hipposideros murinus</i> , Gray.	Pinang,	Southern Mahratta country, Nicobars.
21	<i>Hipposideros galeritus</i> , Cantor.	Pinang,	

22	<i>Vespertilio adversus</i> , Horsfield ?	Pinang.	Java, Calcutta.
23	<i>Kirivoula picta</i> , Gray.	Pinang,	Borneo, Java, Sumatra.
24	<i>Kirivoula tenuis</i> , Gray.	Pinang,	Borneo, Java, Sumatra.
25	<i>Trilatitus Horsfieldii</i> , Gray.	Pinang,	Java, Sumatra.
26	<i>Scotophilus Temminckii</i> , Gray.	Malayan Peninsula and Islands,	Timor, Borneo, Java, Sumatra, Calcutta, Pondicherry.
27	<i>Pteropus edulis</i> , Geoffroy.	Malayan Peninsula and Islands,	Java, Sumatra, Banda, Bengal, Assam.
28	<i>Cynopterus marginatus</i> , F. Cuvier.	Malayan Peninsula and Islands,	Java, Sumatra, Southern Mahratta country, Bengal, Nipal.
29	<i>Tupaia ferruginea</i> , Raffles.	Pinang, Singapore, Malayan Peninsula,	Borneo, Java, Sumatra.
30	<i>Gymnura Rafflesii</i> , Vigors and Horsfield.	Malayan Peninsula, Singapore,	Sumatra.
31	<i>Sorex murinus</i> , Linné.	Pinang,	Java, Sumatra.
32	<i>Helarctos malayanus</i> , Horsfield.	Malayan Peninsula,	Sumatra, Tenasserim, Assam, Nipal.
33	<i>Arctictis Binturong</i> , Fischer.	Malayan Peninsula,	Arracan, Tenasserim, Assam, Nipal, Bhotan.
34	<i>Putorius nudipes</i> , Fred. Cuvier.	Malayan Peninsula,	Borneo, Sumatra.
35	<i>Mustela flavigula</i> , Boddaert.	Malayan Peninsula,	Java, Sumatra, Nipal.
36	<i>Lutra Nair</i> , F. Cuvier.	Malayan Peninsula,	China, Bombay, Southern Mahratta country.
37	<i>Lutra Barang</i> , Raffles.	Malayan Peninsula,	Borneo, Sumatra.
38	<i>Aonyx leptonyx</i> , Gray.	Malayan Peninsula, Singapore,	Java, Sumatra, Nipal.
39	<i>Cuon primævus</i> , Hodgson.	Malayan Peninsula,	Bengal, Nipal.
40	<i>Viverra Zibetha</i> , Linné.	Pinang, Singapore, Malayan Peninsula,	Southern China, Siam, Bengal, Khasyah Hills, Nipal.
41	<i>Viverra Tantalunga</i> , Gray.	Pinang, Singapore, Malayan Peninsula,	Amboina, Celebes, Borneo, Philippine Islands, Sumatra.
42	<i>Viverricula malaccensis</i> .	Malayan Peninsula, Singapore,	China, Philippines, Java, Cochinchina, Tenasserim, Bengal, Nipal, Hindoostan, Dukhun, Bombay.
43	<i>Prionodon gracilis</i> , Horsf.	Malayan Peninsula,	Borneo, Java, Sumatra.
44	<i>Paguma leucomystax</i> , Gray ?	Malayan Peninsula, Singapore,	Sumatra.
45	<i>Paguma trivirgata</i> , Gray.	Malayan Peninsula,	Moluccas, Tenasserim.

46	<i>Paradoxurus musanga</i> , Gray.	Pinang, Singapore, Malayan Peninsula,	Timor, Borneo, Java, Sumatra.
47	<i>Paradoxurus Derbyanus</i> , Gray.	Malayan Peninsula,	Borneo.
48	<i>Cynogale Bennettii</i> , Gray.	Malayan Peninsula,	Borneo, Sumatra.
49	<i>Herpestes javanicus</i> , Desmarest.	Penang, Malayan Peninsula,	Java.
50	<i>Herpestes auropunctatus</i> , Hodgson.	Malayan Peninsula,	Bengal, Nipal, Scinde, Afghanistan.
51	<i>Herpestes griseus</i> , Desmarest.	Malayan Peninsula,	Bengal, Hindoostan, Scinde, Nipal.
52	<i>Herpestes brachyurus</i> , Gray.	Malayan Peninsula.	
53	<i>Felis tigris</i> , Linné.	Malayan Peninsula,	Ceylon, India.
54	<i>Felis leopardus</i> , Schreber.	Malayan Peninsula,	India.
55	<i>Felis marmorata</i> , Martin.	Malayan Peninsula.	
56	<i>Felis javanensis</i> , Desmarest.	Pinang, Malayan Peninsula,	Java, Sumatra?
57	<i>Felis planiceps</i> , Vigors and Horsfield.	Malayan Peninsula,	Borneo, Sumatra.
58	<i>Felis domestica</i> .		
59	<i>Sciurus bicolor</i> , Sparrm.	Pinang, Malayan Peninsula,	Borneo, Java, Sumatra, Siam, Tenasserim, Assam, Nipal.
60	<i>Sciurus Rafflesii</i> , Vigors and Horsfield.	Malayan Peninsula,	Borneo, Java, Canton Province.
61	<i>Sciurus hippurus</i> , I. Geoffroy.	Malayan Peninsula,	Java, Sumatra, Assam, Canton Province.
62	<i>Sciurus vittatus</i> , Raffles.	Pinang, Singapore, Malayan Peninsula,	Borneo, Java, Sumatra, Canton Province.
63	<i>Sciurus nigrovittatus</i> , Horsfield.	Malayan Peninsula,	Borneo, Java, Sumatra, Canton Province.
64	<i>Sciurus tenuis</i> , Horsfield.	Malayan Peninsula, Singapore,	Borneo, Java, Sumatra, Canton Province.
65	<i>Sciurus laticaudatus</i> , Diard. Var.	Malayan Peninsula.	
66	<i>Pteromys nitidus</i> , Geoffroy.	Pinang, Singapore, Malayan Peninsula,	Borneo, Java, Sumatra.
67	<i>Sciuropterus Horsfieldii</i> . Waterhouse.	Malayan Peninsula,	Java? Sumatra?
68	<i>Sciuropterus genibarbis</i> .	Malayan Peninsula,	Java.
69	<i>Mus bandicota</i> , Bechst.	Pinang, Malayan Peninsula,	Southern Mahratta country, Bengal, Nipal.
70	<i>Mus decumanus</i> , Pallas.	Cosmopolita.	

71	<i>Mus setifer</i> , Horsfield.	Pinang,	Borneo, Java, Sumatra, Van Diemen's Land.
72	<i>Mus rufescens</i> , Gray.	Pinang,	Dharwar, Madras, Bengal, Arracan.
73	<i>Mus musculus</i> , Linné?	Pinang,	
74	<i>Rhizomys sumatrensis</i> , Gray.	Malayan Peninsula,	China, Moulmein, Assam.
75	<i>Hystrix longicauda</i> , Marsden.	Malayan Peninsula,	Borneo, Java, Sumatra.
76	<i>Atherura fasciculata</i> , Cuv.	Pinang, Malayan Peninsula,	Borneo, Java, Sumatra.
77	<i>Manis javanica</i> , Desmarest.	Pinang, Malayan Peninsula,	Borneo, Java, Sumatra.
78	<i>Elephas indicus</i> , Linné.	Malayan Peninsula,	Borneo, Burma, Siam, India, Ceylon.
79	<i>Sus indicus</i> , Schinz.	Pinang, Singapore, Lancavy, Malayan Peninsula,	Bengal, Nipal, Southern Mahratta country.
80	<i>Sus scrofa</i> , Var. Linné.	Malayan Peninsula and Islands,	China.
81	<i>Rhinoceros unicornis</i> , Linné.	Malayan Peninsula,	Bengal, Assam, Nipal.
82	<i>Rhinoceros sondaicus</i> , Cuv.	Malayan Peninsula,	Java.
83	<i>Rhinoceros sumatranus</i> , Raffles.	Malayan Peninsula,	Sumatra, Tenasserim.
84	<i>Tapirus malayanus</i> , Raffles.	Malayan Peninsula,	Borneo, Sumatra.
85	<i>Equus caballus</i> , Linné.	Introduced in the Malayan Peninsula and Islands.	
86	<i>Tragulus Kanchil</i> , Gray.	Pinang, Singapore, Lancavy, Malayan Peninsula,	Java, Sumatra.
87	<i>Tragulus javanicus</i> , Pallas.	Malayan Peninsula,	Borneo, Sumatra, Java.
88	<i>Stylloceros Muntjak</i> , Ham. Smith.	Malayan Peninsula,	Borneo, Banka, Java, Sumatra, Tenasserim, Nipal, Assam, Bengal, Southern Mahratta, Dukhun.
89	<i>Axis maculatus</i> , H. Smith.	Malayan Peninsula, Pinang,	Sumatra, Bengal, Assam, Nipal, Southern Mahratta country, Ceylon.
90	<i>Rusa equina</i> , H. Smith.	Pinang, Malayan Peninsula,	Borneo, Sumatra.
91	<i>Panolia acuticornis</i> , Gray?	Malayan. Peninsula,	
92	<i>Nemorhedus sumatrensis</i> ,	Malayan, Peninsula,	Sumatra, Tenasserim.

93	<i>Bos gour</i> , Trail.	Malayan Peninsula,	Tenasserim, Hindoostan, Assam, Nipal, Southern Mah-ratta country.
94	<i>Bos taurus</i> , <i>Var. indicus</i> , Lin.	Introduced in the Malayan Countries.	
95	<i>Bubalus arnee</i> , H. Smith.	Ditto.	
96	<i>Halicore indicus</i> , F. Cuv.	Singapore, Malayan Peninsula,	Philippines, Moluccas, Sunda Islands, Sumatra, New Holland, Red Sea.
97	<i>Delphinus plumbeus</i> , Dussumier.	Malayan Seas,	Bay of Bengal.

Note to GEN. NYCTINOMUS, p. 9. A male *Nyctinomus bengalensis*, Geoffroy, (*Syn. Vespertilio plicatus*, Buchan.—*N. bengalensis*, Geoffroy, apud Horsfield.—*Dysopes plicatus*, Temminck, apud Schinz,) examined after the Catalogue had passed through the press, exhibited a true cæcum. The entire length of the animal was $4\frac{3}{8}$ inches, of which the tail measured $1\frac{5}{8}$ inch. Extent of the flying membrane : 1 foot $0\frac{4}{8}$ inch.

Length of the small Intestine,	.. .. .	$9\frac{1}{8}$ inches.
„ „ large ditto,	.. .. .	$4\frac{1}{8}$ „
„ „ cæcum,	.. .. .	$0\frac{3}{16}$ „

The cæcum is crescent-shaped, with the concave curvature firmly adhering to the external surface of the small intestine. The convex curvature presents near the apex a sacculated appearance ; the membranes are thickened. Where the cæcum joins, the small intestine and the rectum are narrowed.

Fort William : Dec. 11th, 1846.

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